PATTERN, PRACTICE AND FACTORS INFLUENCING MULTIPLE MEDICATION USE AMONG ELDERLY ATTENDING GERIATRIC AND MEDICAL OUT-PATIENT CLINICS AT UNIVERSITY COLLEGE HOSPITAL, IBADAN

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DEDICATION

This project is dedicated to Almighty God, my parent and my wife who gave me the inspiration and indispensible support to pursue my ambition.

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ABSTRACT

The risk associated with taking multiple medications among the elderly could be well managed if the elderly ones adhere strictly to instructions and the relevant agencies play their respective roles. Previous work has not been able to link the knowledge and perception of the elderly towards the use of multiple medications with the associated risk factors of among them. Consequently, this study considered the pattern, practice and factors influencing multiple medication use among elderly. This study was therefore designed to assess the factors influencing multiple medication use among the elderly attending geriatrics clinic and medical out-patients at University College Hospital Ibadan.

A cross sectional study was conducted among 400 purposively selected elderly patients. A pre-tested semi-structured interviewer-administered questionnaire which contained an 8 – point knowledge scale was used to assess the knowledge of the respondents; scores between 0 – 4 indicated poor knowledge while scores greater than 4 indicated good knowledge of multiple medication use. A 12 – points perception scale was used to assess the perception of the respondents; scores between 0 – 5 indicated poor perception and scores greater than 5 indicated good perception of multiple medication use. The data were analyzed using descriptive statistics, logistic regression and Chi-square test at p=0.05.

Mean age of respondents was 69.79±8.1, 53.7% were males and 67.5% were married. Majority (66.4%) of the respondents had good knowledge of multiple medications use while the 33.6% had poor knowledge. There was a significant relationship between the monthly income of respondents (X^2=22.7976, df=4, p=0.00013), level of education of respondents (X^2=11.6064, df=4, p<0.000) and the knowledge on multiple medication use. There was a significant relationship between the knowledge and factors influencing multiple medication use (X^2=4.3422, p=0.027). About sixty per cent had poor perception while 40.7% had good perception. There was a significant relationship between factors such as stress of ingesting drugs (X^2=15.463,df=1), lack of money for purchasing of prescribed drugs (X^2=18.106.df=1), frequent change of medication (X^2=20.918 df=1), forgetting to use drugs as prescribed by the doctor (X^2=14.989,df=1) and practice of elderly towards multiple medication use. About half (50.2%) of the respondents take more than four

medications. Major medications taken by the respondents include Antihypertensive drugs, non-Steroidal Anti-inflammatory Drugs (NSAIDS), oral hypoglycemic agents, insulin and multivitamins. Less than one-fifth of the respondents experience side effects due to these medications. Some of the major side effects experienced include tiredness, insomnia, agitation, and decrease in appetite. Some of the perceived factors influencing multiple medication use include the long queues experienced at clinic, cost of consultation and drugs, ignorance, failure to read drug leaflets, nature of job and lack of information. There was no association between multiple medication use among male and female.

Use of multiple medications among patients in UCH is a common phenomenon which can be attributed to prescribing practices of the health workers. Therefore, retraining of prescribers in UCH on the need to reduce multiple medication use in light of possible drug interactions is recommended. Patients should also be educated on the need to prevent self-medications.

Keywords: multiple medication use, risk factors, perception, practice, elderly patients

Word count: 495

CERTIFICATION

I certify that this work was carried out by Saheed ADEBAYO in the Department of Health Promotion and Education, University of Ibadan under my supervision.

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LIST OF ABREVIATIONS

ACT- Artemisinin Based Combination Therapy

ADR- Adverse drug reaction

AMR- Anti Microbial Resistance

HBM- Health Believe Model

BMI- Body Mass Index

CCU- Coronary Care Unit

INRUD- International network of the rational use of drugs

NHANES- National Health and Nutrition Examination Survey

NSAIDS- Non Steroidal Anti Inflammatory Drugs

NHIF- National Hospital Insurance Fund

PIDT- Potential inappropriate drug therapy

RDT- Rapid Diagnostic Test

STROBE- Strengthening the reporting of observational studies in epidemiology

SHOW – Survey of health of Winsconson

UCH- University College Hospital

URTI- Upper Respiratory Tract Infection

WHO- World Health Organization

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

The irrational use of medicines has become a common problem worldwide. More than 50% of all medicines are prescribed, dispensed or sold inappropriately, and half of all patients fail to take medicines correctly (WHO 2002). The common problems of inappropriate use of medicines include: polypharmacy (use of too many medicines), overuse of antibiotics and injections, failure to prescribe in accordance with clinical guidelines, inappropriate self-medication and failure of patients to take their medicines correctly (WHO 2002).

There are many factors contributing to irrational use of medicines which can be categorized into three groups:

1. Factors concerning with Health professionals (Laboratory Technicians, Prescribers, Dispensers) like the inaccurate diagnosis, lack of training and independent medicines information, lack of confidence and generalisation of limited beliefs.
2. Factors concerning with Health Systems which are the absence or ineffectively implemented regulations like ethical promotion and registration of medicines, unreliable medicines supply system, the poor infrastructure, shortage of qualified health workers and absence of monitoring and supervision systems.
3. Factors concerning with Patients, like inability to communicate problems, misleading beliefs and medicines misinformation. Population ageing is a result of high life expectancy and declining fertility. It is now a global phenomenon as in almost every country older population is rapidly increasing. Ageing is compressed into two or three decades over a single generation. The number of the aged population is being projected to be around 1.5 billion in 2050, with 80% of them in the developing countries (Suzman, 2011).

Ageing is usually accompanied with chronic illness conditions (Olshanky, 2012). Higher rates of chronic illness increase the likelihood of taking multiple medications

by older people. Multiple medication use increases the risk of drug-related events such as falls, confusion and functional decline. In one of the studies, it was found that elderly commonly used both prescribed and non-prescribed medicine together which get them into the risk of major drug-drug reaction.

Concerns regarding the harmful effects of the use of medication by the elderly led health professionals, such as pharmacists and physicians, to develop and implement various methods and tools to identify PIDT prescription patterns (Ribeiro et al., 2005). Therefore, the adequacy of these techniques should be evaluated by explicit and implicit methods, and the tools validated to reduce PIDT prescription (Eldin & Ali, 2013).

The consequences of irrational use of medicines include significant patient harm in term of poor patient outcome and significant Adverse Drugs Reactions(ADRs), development of antimicrobial resistance, waste of resources and economic burden on patient and society (WHO 2002)

1.2 Medication consumption pattern and polypharmacy

The major concern for all cases of polypharmacy is the prospect of adverse drug reactions and serious drug-drug interactions. In some instances, it is therapeutically necessary to use multiple agents to treat certain conditions. It is the responsibility of pharmacists to assess patients with multiple medication regimens and to make recommendations when necessary. Researchers have shown that more than 75% of adverse drug reactions that result in hospitalization are related to known pharmacologic agents and are partly due to inadequate monitoring, inappropriate prescribing, and lack of patient education and compliance. Research also suggests that the potential for an adverse drug reaction to occur is 6% when an individual takes 2 medications. It increases to 50% when 5 medications are taken concomitantly, and it rises to 100% when 8 medications are prescribed. Screening in cases of polypharmacy, particularly in the elderly patient population, is crucial because adverse drug events can often imitate other geriatric syndromes or precipitate confusion, falls, incontinence, urinary retention, and malaise. These side effects in turn may cause a physician to prescribe another agent to treat them (Pharmacy time's publication, 2010).

1.3 Statement of the Problem

The irrational use of medicines by prescribers, dispensers and patients has become a common problem worldwide, where more than 50% of all medicines are prescribed, dispensed or sold inappropriately, and half of all patients fail to take medicines correctly. The extent of the problem at Health Insurance setting may be higher due to moral hazards (Eldin & Ali, 2013).

Availability of drugs is one factor known to improve utilization of health services. The extent of drug use is directly affected by the prescribing behavior of physicians and other healthcare professionals who sometimes stand in the position of being the issuer of drug prescriptions. Multiple medication use is one of the most important factors that enable the occurrence of drug related problems such as adverse drug reactions and drug-drug interactions, especially in elderly (Kumara, Ramani, Bushipaka, Radadiya, Sowmya and Dhruvil, 2014). This creates a huge problem which may even complicate the different ailments sufferers are trying to correct.

International research shows that multiple medication use is common in older adults with the highest number of drugs taken by those residing in nursing homes (Robert, 2014). Nearly 50% of older adults take one or more medications that are not medically necessary. Research has clearly established a strong relationship between multiple medication use and negative clinical consequences (Hanlon, 2014). Moreover, well designed inter-professional (often including clinical pharmacist) intervention studies that focus on enrolling high risk older patients with multiple medication use have shown that they can be effective in improving the overall quality of prescribing with mixed results on distal health outcomes (Hajjar, 2013).

In spite of the widespread use of prescription drugs by the aged population, prescribing for the elderly may be less than optimal and research has documented widespread inappropriate medication prescribing for the elderly leading to multiple medication use (Monane, Cataldi ; 2000).

Though studies pertaining to prescription drugs have been carried out in Nigeria; however, there is paucity of studies combining prescribing patterns and multiple medication use in a special population such as the elderly (Yusuf, Balogun; 2004).

Hence, the main aim of this study was to investigate the pattern, practice and factors influencing multiple medication use among elderly.

1.4 Justification

Use of multiple medications among elderly patients is a major public health concern. It is accompanied with the detrimental effect on the elderly. It is estimated to be the fifth major cause of death (Haider, 2008). Inappropriate consumption pattern of medications can reduce the quality of life of the elderly. So this study aims to investigate the pattern, practice and factors influencing multiple medication use among elderly.

Findings from the study would be helpful for policy makers, health workers, researchers, academician and social workers who are working in the field of ageing and health. This will make them to be aware of the prevalence and dangers associated with inappropriate consumption pattern of drugs so that they will fully evaluate all medications at each patients' visit to ensure ideal usage.

Findings from this study could also be used to orientate the health workers, advocate to ministry of health, and improve awareness on the risk associated with inappropriate use of medications among elderly

1.5 Research Questions

i) What is the knowledge of elderly on multiple medication use?

ii) What are the perceptions of elderly towards the risk associated with multiple medication use?

iii) What are the factors influencing multiple medication use?

1.6 Broad Objective

The aim of the present study is to assess the pattern, practice and factors influencing multiple medication use among elderly attending Geriatric and Medical out-patient clinics at UCH, Ibadan.

1.7 Specific Objective

The specific objectives are:

i. To assess the knowledge of elderly on multiple medication use
ii. To determine the perception of elderly towards the risk associated with multiple medication use
iii. To identify the factors influencing multiple medication use

1.8 Research Hypotheses

1. There is no significant difference between socio demographic characteristics of the respondents (age, sex, marital status, ethnic group, religion, occupation, level of education and monthly income) and their knowledge on multiple medication use.
2. There is no significant difference between socio demographic characteristics of the respondents (age, sex, marital status, ethnic group, religion, occupation, level of education and monthly income) and their perception on the risk associated with multiple medication use
3. There is an association between knowledge and multiple medication use
4. There is no association between factors influencing multiple medication use and its practice.

CHAPTER TWO

REVIEW OF LITERATURE

2.1 Conceptual Review

The concept of ageing and multiple medication use among elderly is explored at the beginning of this chapter. The practice of multiple medication use as well as the various risk factors associated with the practice is reviewed. The many factors influencing patients' practice of multiple medication use among elderly patients are also described.

2.1.1 Concept of Ageing and multiple medication use

Elderly population is now growing as the fastest patient population worldwide. The process of ageing involves many changes in the biological, functional, psychological and social factors which vary with the genetic factors and age-related vulnerability of the elderly (kinsela, 2005). Often ageing comes with the chronic illnesses, comorbidity, disability and social isolation. It is very rare for elderly patients to have accompanied with only one disease. Multimorbidity is ranging from 55 to 98% among the elderly, and it is more among very old, women, low- socioeconomic people. Multimorbidity usually refers to the co-occurrence of more than two diseases (Saosa, 2012).

Additionally, there is worldwide discussion about whether the standards used in the prescription of pharmacotherapy in older people are inappropriate (Iyer et al., 2008). For example, a study conducted in the south of Ireland with 1.329 patients over 65 years of age, with an average of five drugs per patient, identified 632 prescriptions containing PIDT (Albert et al. 2010).

Laroche et al. (2007) showed that the incidence of damage caused by medication was 20.4% among patients with PIDT, compared to 16.4% for patients who use only medications appropriate for the elderly(Fermino et al., 2015).

Some revisions debate these instruments, but there are few published systematic reviews assessing the quality of studies that use tools to evaluate PIDT in various

practice scenarios (Guaraldo et al., 2011; Dimitrow et al., 2011). The purpose of this review was to analyze research that uses tools to assess PIDT through the strengthening the reporting of observational studies in epidemiology (STROBE) initiative.

Moreover, the WHO and the International Network for the Rational Use of Drugs (INRUD) (WHO 1993) have developed a standard methodology to investigate medicines use problems, implement and evaluate interventions to promote the rational use of medicines. This methodology is widely and regularly used. The WHO and INRUD have developed three types of indicators, these are:

- Average number of medicines per encounter
- Percentage of medicines prescribed by generic name
- Percentage of encounters with antibacterial prescribed
- Percentage of encounters with an injection prescribed
- Percentage of medicines prescribed from NHIF medicines list

Multiple prescription of medication is very common among elderly, which increases the risk of polypharmacy. The high prevalence of multiple medication use may lead to drug-disease interaction and drug reactions. In another study, it was found that the Physical Component Summary (PCS) score was associated with the degree of multiple medication use. After controlling the other socio-economic factors, this association remained significant. Lower medication was found to be associated with the low quality of life of elderly.

2.2.1 Medicine use practice globally

A recent study conducted in Papua New Guinea (Joshua, Passmore et al. 2013) explored that, the inappropriate prescribing in terms of medicines selection, dosing and duration was 33.4% in adults and 39.9% in children, while the average number of medicines per encounter was 2.3, the percentage of encounters with an antibacterial prescribed was 58.4 and the percentage of encounters with an injection prescribed was 9.3%. The study revealed that also, the common causes of morbidity were Malaria (23.2%), acute soft tissue injuries (10.4%), Anaemia (8.9) and Respiratory infections (8.7%).

Australia and New Zealand have different levels of compliance to antibiotics prescribing in empirical and directed treatment of severe sepsis and septic shock in intensive care units according to the type of case, and this was shown by study conducted by (Dulhunty, Webb et al. 2010), who found high level of compliance in case of intra-abdominal infections in choosing the recommended medicines, but low compliance in terms of dosing of the B-lactams which was below the recommended level in 40% of cases, that may lead to development of antimicrobial resistance. The study revealed also the high level of compliance in treatment of community acquired pneumonia in using dual therapy, and in hospital acquired pneumonia for high risk of multi-drug resistance, however the use of non-recommended broad spectrum agents like meropenem and vancomycin, increased the cost of intervention in the Intensive Care Unit (ICU) and may lead to multi drug resistance, prolonged length of stay and high economic burden. The study found that combination therapy was prescribed in 82% of cases for community acquired pneumonia, while monotherapy for methicillin-sensitive S.Aureus was prescribed in 32% of cases and monotherapy for P. Aerugenosa in 65% of cases. A study conducted in Latin America (Wirtz, Dreser et al. 2010) found that, Venezuela has the highest antibiotics utilization rate in Latin America, followed by Argentina and Chile, while Brazil, Uruguay and Colombia have the lowest utilization rates. The study showed also the increase use of quinolones in all countries during the period of the study, with high increase in utilization of macrolides, lincosaminde, and streptogramin in Peru, Brazil and Argentina. A study in Brazil (Naves and Silver 2005) revealed that, the average number of medicines per encounter was 2.3, percentage of medicines prescribed by generic name was73.2%, the percentage of antibiotics was 26.2%, percentage of injections 7.5% and the percentage of medicines prescribed from Essential Medicines List was 85.3%.

Over 90% of all antibiotics (Moro, Marchi et al. 2009) are prescribed at the primary care level in Europe, and are mostly prescribed for respiratory tract infections in children. The main causes of antibiotics prescribing are Upper Respiratory Tract Infections (URTI) acute tonsillitis, bronchitis and otitis media, (Holstiege and Garbe 2013), however these are mostly viral self-limiting conditions and no antibiotic treatment is needed, (Arroll and Kenealy 2005). A longitudinal study (Adriaenssens, Coenen et al. 2011) conducted in 25 European countries between 1997 and 2003, showed that, the volume of outpatient antibiotic use increased with high seasonal

variation (increase of .30% in the first and fourth quarters compared with the second and third quarters), and penicillins were the most prescribed outpatient antibiotics, while the use of cephalosporins, tetracyclines and sulphonamides remained the same or decreased, but quinolones increased. In Germany (Holstiege and Garbe 2013) antibiotics comes at the second class after ACE inhibitors, which is the most frequently prescribed class of medicines. The study revealed also that, more than one third of children under 15 years received at least one antibiotic, which was similar to the findings by (Koller, Hoffmann et al. 2012), who reported a prescribing prevalence of 35.8 % among German children and adolescents between 0 and 17 years of age for the year 2010. Moreover, the German General Practitioners who treated Turkish immigrants, reported that they were influenced by patients to prescribed antibiotics for acute cough, which is not recommended by the International Guidelines, (Sahlan, Wollny et al. 2008) and (Tan, Little et al. 2008). Interestingly, a successful educational intervention was implemented targeting the patients who responded positively and changed their attitude. A study in Italy (Adriaenssens, Coenen et al. 2011) showed that, it is one of three countries which have the highest prevalence of antibiotics expressed as defined daily dose per 1,000 inhabitants (DID). The Italian child is exposed to antibacterial medicines three times more than a Dutch child, and four times more than a British child. The overall prevalence in Italy at the national level is 50.5%, however there are differences in prevalence rates between Regions, which ranged from 42.6% in Lazio to 62.1% in Puglia, which are mainly due to the variation of diagnostic uncertainty, perceived parental expectations of antibiotic prescriptions, the existing healthcare system and patient- or parent-related socio-cultural and economic determinants. Interestingly, the second-line antibiotics like cephalosporins are commonly used unlike Netherlands and Denmark (Piovani, Clavenna et al. 2012), where this class represents less than one percent of the overall antibiotics, however the study showed no significant difference in prevalence between males and females.

A study (Murphy, Bradley et al. 2012) conducted in the Republic of Ireland revealed that, the prevalence of antibiotics used in primary care was 20.16%, and 25.74% of the patients of the age between zero and 14 years treated by antibiotics, however this group had represented the lowest percentage rate of antibiotic prescribing per respiratory consultation, while patients aged 15–64 had the highest rate (62.2%)

unlike other European countries. The study showed also that, the first cause of antibiotics use was the upper respiratory problems (64.72%), followed by skin (10.21%) and urinary tract disorders (8.63%), but 78% of antibiotics prescription were against the clinical guidelines which was common in most of the classes of antibiotics used, which are supposed to be as 2nd and 3rd line for the upper respiratory tract infection like Co-amoxiclav and clarithromycin. This was due to diagnosis and/or reasons for consultation in addition to the non-clinical factors, like the patients pressure, especially those who pay for the General Practitioner consultations, who are more likely to receive antibiotics (Murphy, Byrne et al. 2011). Likewise, the overuse of cephalosporines and macrolides in Greece revealed the poor adherence to clinical guidelines comparing to other European countries (Kontarakis, Tsiligianni et al. 2011). A recent study in Europe (van der Weijden, Wensing et al. 2013) revealed that, The Netherlands has the lowest use of antibiotics in Europe; however 50% of prescriptions for Respiratory Tract Infections written by the General Practitioners are not in accordance with Dutch guidelines. Moreover, educational intervention based on guidelines without feedback does not reduce the antibiotics prescriptions, while monitoring and detailed feedback during education showed a reduction of antibiotics prescription by 12 %.

2.2.2 Medicine use in Africa

A study conducted in Nigeria (Erah, Olumide et al. 2003) revealed that, antibiotics prescribing differed from public hospitals to private hospitals, as well as the use of generic medicines in prescribing, while the use of antibiotics was found to be greater in public hospitals. Furthermore, the study showed that, the percentage of medicines prescribed by generic name was less in private hospitals, and the most important factors that influenced the medicines prescribing were the medicines availability, the in-service training and the cost of the medicines. Another study (Ndukwe, Ogaji et al. 2013) conducted in Jos University Teaching Hospital revealed that, the average number of medicines per encounter was three, the percentage of medicines prescribed by generic name was 70.2% and the percentage of encounters with antibiotics was 35% while the percentage of the encounters with injections prescribed was 9%. The study showed also that 88% of the medicines prescribed were according to the hospital formulary. Another study in Nigeria (Uzochukwu, Onwujekwe et al. 2011)

showed that, Artemesinin- based Combination Therapy (ACT) was used in 74% of Rapid Diagnostic Test (RDT) negative results due to lack of trust in the RDT test.

Although pregnant women should be treated promptly, but medicines should be prescribed cautiously to avoid serious side effects on both the mother and the foetus like, low infant gross, motor development and reduced levels of social–emotional and adaptive behaviour when using SSR during pregnancy (Hanley, Brain et al. 2013).

Previous study conducted in Togo (Potchoo, Redah et al. 2009) among the pregnant women revealed that, the medicines prescription increased from 6.88% in the first trimester to 39.59% in the second trimester and 53.54% in the third trimester of pregnancy in all classes of medicines. The study showed the significant increase in the use of anti-malarial medicines from 10.71% in the first trimester to 48.61% in the third trimester of pregnancy. A recent study conducted in Ethiopia (Abdella and Wabe 2012) explored that, medicines prescribing pattern in South West Ethiopia in 2011 differed from other African countries. The percentage of medicines prescribed in generic name was 88.5% while the average number of medicines per encounter was 2.13, the percentage of medicines with strength mentioned was 62.2%, the route of administration was mentioned for 67.4% of medicines, the dose was mentioned in 38.8% of medicine, frequency and duration were mentioned in 76.3% and 62.2% respectively, but the dosage form of medicines was written in only 27.6% of medicines prescribed. A medicines use indicator study conducted in Tanzania (Nsimba 2006) in children under five years old revealed that, the average number of medicines per encounter was 2.3, the percentage of medicines prescribed in generic name was 87%, the percentage of encounters with an antibacterial prescribed was 30.5%, the percentage of encounters with an injection prescribed was 26.2% and the percentage of medicines prescribed from the essential medicines list was 93.5%.

2.3 Risk factors associated with multiple medication use

Among the key factors predicting medication use among the elderly, age was found to be an important determinant in the number of prescription medications used. In a study conducted by Jianhong Che et al (2014) on the Overall Prescription Medication Use among Adults: Findings from the Survey of the Health of Wisconsin (SHOW). The results showed that more than a quarter of all SHOW participants aged 60-74 used five or more medications in the past. It is also common for older adults to use

prescription medications along with over-the-counter medications or dietary supplements (Qato, Alexander, Conti, Johnson, Schumm, and Lindau 2004). These factors posed increased risk of inappropriate prescribing, misuse, drug related adverse events, and drug-drug interactions among older adults (Gu, Dillon and Burt 2008; Chrischilles, Vangilder, Wright, Kelly, and Wallace 2009). It has been reported that polypharmacy strongly predicts adverse outcomes and may even increase the risk of mortality (Koper, Kamenski, Flamm, Bohmdorfer, and Sonnichsen 2013; Peron, Gray, and Hanlon 2011). A study examining the frequency of medication errors in patients taking ≥ 5 medications in Austria reported multiple medication use in 93% of patients, dosing errors in 56% of patients and "category X interactions" (the most dangerous potential drug-drug interactions) in 2.4% of patients (Koper, Kamenski, Flamm, Bohmdorfer and Sonnichsen 2013). Concurrent use of multiple medications in the elderly should, therefore, be carefully monitored and programs targeting healthcare providers as well as seniors to promote safe and appropriate medication use should be strongly supported.

Risk factors such as obesity and smoking history were also significant predictors of prescription medication use in the elderly. Use of at least 5 medications increased substantially with increase in Body Mass Index BMI Jianhong Che et al (2014). Old adults with BMI ≥ 30 were more likely to use at least five medications compared to participants who were not overweight (BMI < 25).

According to data from the 2007-2008 National Health and Nutrition Examination Survey NHANES it was found that obese adults had greater use of all common medication classes, except sex hormones (Kit, Ogden, and Flegal 2012) and may be explained by the high prevalence of comorbid conditions among obese subjects. A high percentage of adverse drug events has already been reported among obese patients due to inappropriate medication dosing (Classen, Pestotnik, Evans, Lioyd and Burke 1997; Medico, and Walsh 2010). Thus, obese adults are likely subject to an even greater risk of adverse drug events. The high prevalence of medication use in former smokers also is likely associated with a high level of comorbidities (eg, chronic obstructive pulmonary disease).

Findings from the Survey of the Health of Wisconsin (SHOW) by Jianhong Che et al (2014) determined that people without health insurance, prescription drug coverage,

and a regular source of care were less likely to use prescription medications. Consequently, lack of access to health care may lead to suboptimal treatment of diseases among these adults.

2.4 Common problems and consequences of irrational use of medicines

2.4.1 Polypharmacy and Adverse Drug Reactions

The irrational use of medicines is characterized by the polypharmacy, which has different definitions; Veehof, Stewart and others (Veehof, Stewart et al. 1999) defined polypharmacy as the long-term simultaneous use of two or more drugs (long term is 480 days or more in 2 years), while Fulton and Allen (Fulton and Riley Allen 2005) defined it as the use of medications that are not clinically indicated. The prevalence of polypharmacy is higher in elderly people especially patients of over 65 years age (Masoodi 2008). A survey conducted in United States of America (Kaufman, Kelly et al. 2002) at community setting showed that, more' than 90% of people over 65 years old used at least one medicine weekly, and more than 40% used 5 medicines or more. The survey showed that, the highest prevalence of polypharmacy was among women, whom over 23% used five medicines or more, however these were only for the prescribed medicines, but the over-the counters medicines and herbal medications were not included. Moreover, a study conducted in Italy (Nobili, Licata et al. 2011), explored that, 52% of hospitalized elderly aged 65 years or more use 5 medicines or more and the prevalence of poly pharmacy increase at discharge up to 67%. Likewise, a study from England (Banerjee, Mbamalu et al. 2011) showed that, 45% of patients over 75 years attending the emergency department use five medicines or more.

An individual-based study of the Swedish population (Hovstadius, Hovstadius et al. 2010) revealed that, the prevalence of polypharmacy during 2005-2008 increased by 8.2% for patients taking five prescribed medicines or more, while the excessive prevalence (prescribed medicines $\geq$ 10) increased by 15.7%, and the prevalence increased in all age groups except for the age group 0-9 years old.

Medicines absorption, distribution, metabolism and excretion change according to age due to physiological change of the body and decline of the efficiency of body organs and tissues, so the doses of medicines taken by elderly patients should be adjusted, especially for medicines of narrow therapeutic index, those eliminated by the kidney or medicines undergo first pass effect, so as to reduce the Adverse Drug Reactions (Masoodi 2008). A cohort study conducted in India (Devi, Kamath et al. 2012) to

determine the frequency of the occurrence of ADRs at CCU setting revealed that, 25.5% of the patients had at least one ADR, of which, 47% were preventable and 25% were severe. Moreover, the study showed that, the high risk therapeutic groups were analgesics, antiepileptics, antibacterials and antimycotics for systemic use, corticosteroids for systemic use and immunosuppressant agents, but the cardiovascular ADRs were the most common ones, and the hospital stay was longer among patients with ADRs.

Another study in UK (Pirmohamed, James et al. 2004) showed that ADRs caused 6.5% of the hospital admissions, of which 70% were definitely or possibly avoidable, and 80% of the ADRs were directly responsible for admission. In addition, 2.3% of patients admitted (0.15% of all patients admitted) with ADRs died directly due to ADRs, and Acetyl salicylic acid was the main cause of death for 61% cases, while gastrointestinal bleeding was responsible for 51% of cases, which was the main adverse effect of Acetyl salicylic acid and occurred in 74% of admitted patients. The study showed that, the common medicines cause ADRs were Non-steroidal anti-inflammatory drugs (NSAIDs) and diuretics and the median of hospital stay due to ADRs was 8 days which had a cost of €706m(847m$) per year. Children and infants are the most vulnerable group to medicines due to differences in pharmacokinetic and pharmaco-dynamic properties as well as the unevaluated safety profile of several medicines for this age group (Griffith 1999). A nine year cohort study in Germany (Oehme, Rashed et al. 2012) found that, 81% of the children received at least one medicine during their stay at hospital with a median of three medicines per patient, and the most prescribed pharmacological class was the anti-infective medicines for systemic use during the study period, while the second class most frequently prescribed in 1999 were medicines for obstructive airway diseases, but in 2008 were the NSAIDs. In addition, the incidence of ADRs decreased from 21.9% in 1999 to 9.2% 2008, while the proportion of patients with ADRs, as a reason for admission, increased from 0.0% in 1999 to 0.8% in 2008 as well the use of NSAIDs, which were medicines of high risk.

2.4.2 Antimicrobial Resistance

Antimicrobial resistance (AMR) is defined (WHO 2013) as the resistance of a microorganism (bacteria, fungi, viruses and some parasites) to an antimicrobial medicine to which it was originally sensitive. There are many factors that cause the

AMR including poor infection control practices, poor quality of and misuse of antimicrobial medicines. The prevalence of AMR has become a serious problem that faces the health systems, where many safe and effective antimicrobial medicines like ciprofloxacin have developed resistance as well as the new generations of penicillins and cephalosporins used for treatment of gonococcal diseases (WHO 2013). Moreover, the WHO statistics reported that 630,000 cases of Multi-Drug Resistance Tuberculosis in 2011 worldwide. A study conducted in the European countries (van de Sande-Bruinsma, Grundmann et al. 2008) to assess the prevalence of Antimicrobial Resistance from 2000 to 2005, found that Spain, Hungary, and France had the highest AMR, while Sweden and Netherlands had the lowest prevalence, and there was a linear relationship between the extent of use of the antimicrobial medicines and the occurrence of resistance, especially for the penicillins and ehavior olones use with increase resistance in pneumococci and E.coli resistance respectively. Another study (Magiorakos, Suetens et al. 2013) showed the emergence of carbapenem-resistant K. pneumonia in 18 European countries from 2005 to 2010 with high prevalence in Greece, Cyprus, Hungary and Italy. Likewise, other study (den Heijer, van Bijnen et al. 2013) reported the resistance of commensal Staphylococcus aureus in nine European countries especially to Azithromycin, and the highest methicillin-resistance S aureus was reported in Belgium. A study in Pakistan, (Bano, Khan et al. 2012) found that K. ehavior showed high resistance (60%) to gentamicin, low susceptibility (13%) to ciprofloxacin. The susceptibility of S. Aureus to amikacin Co-Amoxiclav and oxacillin was 64%, but had high resistance to ampicillin while the sensitivity to erythromycin, methicillin, and cefotaxime was 45%.

2.5 Interventions to improve use of medicines

There are several strategies that have been developed and implemented to address the inappropriate use of medicines worldwide (Eldin & Ali, 2013).

These strategies include Educational strategy which could be in form of training of health providers at undergraduate stage, in-service training by workshops or seminars, clinical supervision, distribution of printed materials and provision of unbiased medical information. Managerial strategy could also be adopted which might involve the development and implementation of essential medicines list and Standard Treatment Guidelines, changes in selection and procurement of medicines, clinical supervision and implementation of good dispensing practice principles.

Regulatory strategy is based on enforcement of regulations of medicines registration to insure the availability of only the safe and effective medicines, licensing prescribers and medicines outlets, regulating the prescribing and dispensing besides regulating the promotional activities of the pharmaceutical companies while economic strategy includes changes in methods of medicines reimbursement by Health Insurance, removing financial incentives from medicines sales, changing the co-payment method (paying flat fees for every prescription) into co-insurance (paying percentage from the prescription cost) and separation of dispensing process from the prescribing.

There are other strategies which involve health personnel endeavour to inform their patients to maintain accurate medication and medical history, having a complete list of medication which can deter a provider from adding on an additional therapy, identifying the patient medical history which allows the pharmacist to identify an inappropriately prescribed medication, also health personnel should always inform their patients on the perceived side effects of a particular drug prescription as this will prepare their minds for it and prevent them from seeking additional drugs to stop the effects or when necessary, the adequate medication for side effects should be prescribed to them and finally the need for the patients especially the elderly to have only one medical personnel for consultations. If there's any need for referral or change, it must be the medical personnel that have been attending to the patient that will recommend the referral.

2.6 Conceptual Framework

The Health Belief Model (HBM) is a conceptual framework suitable for this study. According to Ross and Mico (1980), the model was propounded by Kurt Lewin and further developed by Rosenstock in the 1950s. It attempts to explain preventive health behaviour, particularly the relation of health behaviour to utilization of health services. It addresses an individual's perception of health threat posed by health problem (susceptibility, severity), the benefits of avoiding the threat and factors influencing the decision to act (barriers, cues to action and self-efficacy). Simply put, the authors adduce that people's belief about whether or not they are susceptible to disease and their perception of the belief of trying to avoid it influence their readiness to act.

Six main constructs influence people's decision about whether to take action for or against multiple medication use. In other words, people are ready to act if they:

1. Believe they are susceptible to the condition (Perceived susceptibility);
2. Believe the condition has serious consequences (perceived severity);
3. Believe taking action would reduce their susceptibility to the condition or its severity (perceived benefits);
4. Believe costs of taking action are outweighed by the benefit (perceived barriers);
5. Are exposed to factors that prompt action (e. g, mass mobilization community awareness, (cue to action); and
6. Are confident in their ability to successfully perform an action (self-efficacy).

It is important to note that personal susceptibility to multiple medication use, as well as perceived seriousness of the practice, varies from person to person. The perception also dependent on the level of knowledge about the health implications, the modifying factors which include the demographic, socio psychological and structural variables. These modifying factors impinge on the level of knowledge and also awaken or subdue threat to take recommended action. Modifying factors enable the individual to evaluate the outcome expected in relation to the constraints. Where the benefits clearly outweigh the constraints, the individual is motivated to take action.

Other factors that may determine individuals' practice of taking multiple medication depends on modifying variables like age, marital status, educational level, knowledge about multiple medication use and its health implications as well as availability and accessibility of resources and facilities (individual must be able to recognize important cues that prompt him or her to take necessary action.

2.6.1 The Health Belief Model applied to assessment of risk factors of multiple medication use among elderly

1. Perceived Susceptibility: Refers to individual's perception that a health problem is personally relevant or that a diagnosis of illness is accurate. In this case the elderly may have little information or may not perceive themselves as being at risk as a result of using multiple drugs. They will adhere and practice preventive measures if they have the knowledge, see an individual who has the disease caused by multiple medication use or know someone who died as a result of the disorder caused by it.

2. Perceived severity: This explains that action will not occur unless the individual perceives the severity to be high enough to have serious effect on their health. If every individual understands the consequences of multiple medication use which include increased health cost, adverse drug effect, drug interaction, medication non adherence, functional status, cognitive impairment, falls and sometimes urinary incontinence.

3. Perceived benefits: The construct of perceived benefits is a person's opinion of the value or usefulness of a new behavior in decreasing the risk of developing a complication. People tend to adopt healthier behaviors when they believe the new behavior will decrease their chances of aggravating their health condition.

4. Perceived barrier: Since change is not something that comes easily to most people, the last construct of the HBM addresses the issue of perceived barriers to change. This is an individual's own evaluation of the obstacles in the way of him or her adopting a new behavior. Of all the constructs, perceived barriers are the most significant in determining behavior change (Janz& Becker, 1984)

5. Cue to action: In addition to the four beliefs or perceptions and modifying variables, the HBM suggests that behavior is also influenced by cues to action. Cues to action are events, people, or things that move people to change their behavior. Examples include illness of a family member, media reports (Graham, 2002), mass media campaigns, advice from others, reminder postcards from a health care provider (Ali, 2002), or health warning labels on a product.

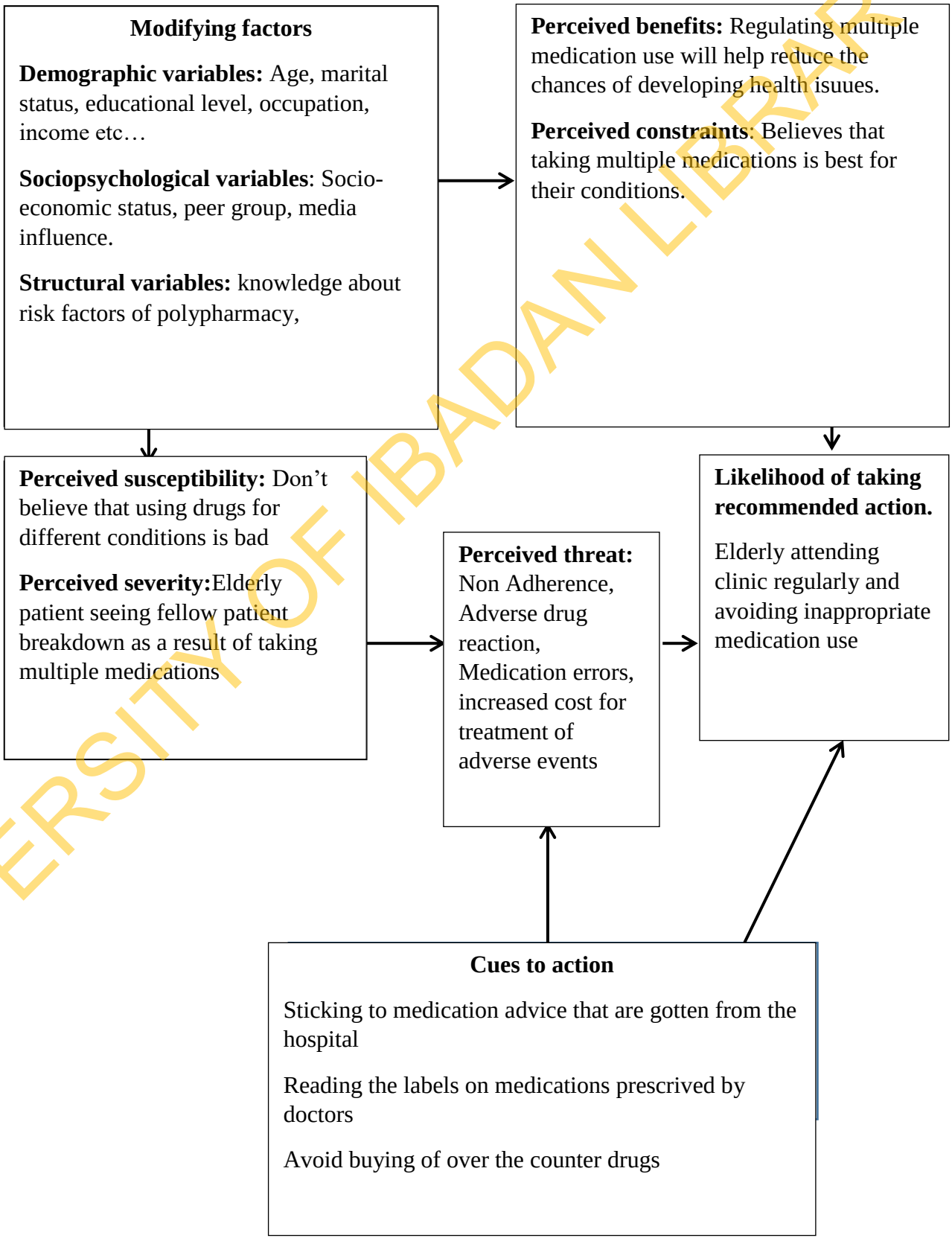
6. Self-efficacy: In 1988, self-efficacy was added to the original four beliefs of the HBM (Rosenstock, Strecher, & Becker, 1988). As was discussed in Chapter 2, self-efficacy is the belief in one's own ability to do something (Bandura, 1977). People generally do not try to do something new unless they think they can do it. If someone believes a new behavior is useful (perceived benefit), but does not think he or she is capable of doing it (perceived barrier), chances are that it will not be tried.

Predicted relationship.

The HBM assumes that people are more likely to change their behaviour if:

1. They know what the behaviour is and how to perform it(knowledge)
2. They feel they are in control of the behaviour and have the relevant skills.
3. They observe the behaviour being practiced by people they consider to be role models.
4. The behaviour is reinforced and encouraged (Hamulandabala, 2012)

FIG 2.1 Health Belief Model Applied to pattern, practice and factors influencing multiple medication use Among Elderly Attending Geriatric and Medical out-patient Clinics at University College Hospital Ibadan.



CHAPTER THRE

CHAPTER THREE

METHODOLOGY

3.1 Study Design

The design for this study was descriptive cross sectional using interviewer-administered questionnaires. The study assessed the pattern of medication consumption and factor influencing the multiple medication use among elderly out patients attending Geriatrics and Medical out-patient clinics.

3.2 Study Area

This study was carried out at the Geriatric and Medical Out-patient clinics of the University College Hospital Ibadan, Ibadan, Oyo State. University College Hospital Ibadan was considered as an ideal study site considering the high influx of elderly patients with multiple pathologies such as hypertension, diabetes, arthritis, and dementia. University College Hospital is the only tertiary hospital in Oyo state and one of the biggest in Nigeria. It is the teaching hospital of the first University in Nigeria, University of Ibadan, Ibadan, and Oyo State Nigeria. The geriatric clinic runs clinics for elderly patients (60 years and above), the clinic opens every day of the week but weekends are mainly for emergency cases. All aging-related diseases are been attended to during every working hour of the week with an average of 60-70 patients daily. The medical out-patient run specialized clinics between Mondays and Fridays e.g cardiology, renal, endocrine, gastrointestinal, chest. The study focused on outpatients who are majorly found Monday to Friday as the study aimed to focus on outpatients since most of the diseases affecting the elderly are managed on outpatient basis. It's mainly the doctors that prescribe medications for them.

While the patients are waiting to doctors (both follow up and new patients), the nurses give them health talk about various diseases both at the geriatrics and medical out-patient. And thus need to comply with medications given to them and discourage the use of medications outside what their doctors prescribe to them.

3.3 Study Population

The study focused on elderly patients 60 years or older on four (4) or more medications attending geriatrics and medical out-patient clinics at University College Hospital Ibadan.

3.4 Inclusion Criteria

The main inclusion criteria are: elderly patients, aged not less than 60 years, attending the geriatric and medical out-patient clinics during the study period and giving informed consent to participate in the study.

3.5 Exclusion Criteria

The exclusion criteria are: elderly patients not on 4 or more medications and those not giving informed consent to participate in the study.

3.6 Instrument for Data Collection

A pre-tested interviewer-administered questionnaire was used to collect the data. Questions in the instrument covered socio-demographic characteristics, knowledge of elderly on multiple medication use, practice of multiple medication use, perception of elderly towards multiple medication use and factors influencing multiple use of medications.

3.7 Sample Size Determination

The minimum sample size was calculated based on the Leslie Kish's formula for sample size determination for estimating proportion in a finite population (Okolie et al., 2010).

$$n = \frac{z^2pq}{d^2}$$

n= the minimum sample size

z= 1.96 at 95% confidence interval obtained from statistical table of normal distribution.

P=30.6 % i.e prevalence of multiple medication use (Fadare et al 2013)

q=1.0-p=1- 0.306=0.694

d= degree of accuracy desired (0.05)

$$n = \frac{1.96^2 \times 0.306 \times 0.694}{0.05^2}$$

n= 326

3.8 Sampling Procedure

The study recruited all patients who fulfilled the inclusion criteria of being elderly who are on four or more medications and are attending clinic at either Geriatrics or medical outpatient department between August 3rd to October 23rd and gave informed consent to participate in the study.

3.9 Validity of the study

It is the degree to which an instrument measures what it is supposed to measure. The instrument was designed using simple English with its validity ensured through extensive literature search on factors influencing taking multiple medications. The supervisor oversaw the development of the instrument before its subsequent administration and other lecturers in the department of Health Promotion and Education to ensure face and content validity. The corrections made by these experts were adapted to improve the instrument. Filter questions was strategically placed within the instrument to ensure that the respondents were not falsifying the responses. There was also translation of the instrument from English to Yoruba (The local language of the target population) language for respondents who do not understand English.

3.10 Reliability of the Instrument

This defines the extent to which an instrument constantly yields the same results on repeated trials. This was ensured by pretesting 10% of the instrument on the elderly patients of Ring road state hospital, Ringroad, Ibadan. This population has similar characteristics with the actual population but did not consist of those who will participate in the study. The findings from the pretest were used to scrutinize and reset the items in the instrument for necessary adjustments before the main study. The pretested questionnaire was analysed using SPSS version 20 and its internal consistency was determined using the Cronbach's Alpha coefficient analysis and a coefficient of 0.77 was obtained which indicate a high reliability.

3.11 Scales of measurement

3.11.1 Scales of Measurement of knowledge of elderly on multiple medication use

The knowledge of the respondents was assessed by posing questions to investigate their knowledge on medication use. A total of eight (8) questions were asked and two (2) points were allocated to every appropriately correct answers and one (2) point to

every correct answer and one (1) to wrong answers; thus bringing the total points to eight (points) . Subsequently the points were categorized between 0-4 as Code1 and >4 as Code 2.

Respondents that score between 0-4=Code 1 were adjudged to have poor knowledge and >4 = Code 2 as good knowledge.

3.11.2 Scales of Measurement of perception of elderly towards multiple medication use

The perception of the respondents was assessed by posing questions on how they perceive multiple medication use. A total of twelve (12) questions were asked and two (2) points were allocated to every appropriately correct answers and one (1) point to very wrong answers; thus bringing the total points to twelve (12). Subsequently the points were categorized between 0-5 as Code1 and > 5 as Code 2.

Respondents that score between 0-5=Code 1 were adjudged to have poor perception and ≥5=Code 2 as good perception.

3.12 Method of data Collection

A visit was paid to the geriatric and medical out-patient clinics for permission and planning prior to conduction of the study. The respondents were adequately informed about the study and valid informed consents were gotten from them. Afterwards, there was administration of an interviewer - administered questionnaires to respondents by the researcher and trained research assistants. Six research assistants were trained on the purpose of the study, the research assistants were taken through the details of the various sections and component of the questionnaire, this is to ensure that they understand the information they are expected to obtain from each respondents. The principle of confidentiality and informed consent was emphasized on to ensure the research assistants comply. This training was taken by me as a facilitator and focused on the objectives and the importance of the study. The elderly patients are mainly found at Geriatric and medical out-patient clinics. Each of this research assistant administered 15 each per day so as to conclude the data collection.

3.13 Data Analysis

Data analysis refers to making sense of data collected so as to present findings and draw specific conclusions at the end of the study by answering the research questions

(Miles and Huberman, 1994).Serial number was assigned to the questionnaires. The answers given were immediately and carefully checked to ensure correctness of response. A coding guide was developed and used for coding the answered questionnaire. Statistical Package for Social Sciences (SPSS) version 20 was used for data entry and analysis from which descriptive statistics such as mean, median, and standard deviation was obtained. Also inferential statistics such as Chi-square test was employed to describe associations/relationship between dependent and independent variables. P-value at 5% level of significance.

3.14 Ethical Consideration

Ethical approval was sought from the ethical review board in the University College Hospital [UCH] which is a representative body of the University of Ibadan. Participation in the research was voluntary by the entire respondent with informed consent obtained from them before their participation.

All through the study, the respondents were not asked to provide any information that can disclose their identity to a third party; their anonymous personality was maintained as much as possible. This study followed ethical principle guiding the handling of human participants in research. The study followed the ethical principles guiding the use of human participants in research, which include Respect for persons, Beneficence, Non–maleficence and Justice. With respect to confidentiality, no identifiers such as name of respondents were used during the course of the study. All information provided was kept confidential during and after the research and was used for the purpose of the research only.

3.15 Limitation of the study

This study is limited to the assessment of factors influencing multiple use of medications among elderly in geriatrics and medical out-patient clinics in UCH Ibadan. More studies can be conducted by extending the study area to other departments outside UCH.

CHAPTER FOUR

RESULT

This section focuses on results of the study that investigated the pattern and factors influencing multiple medication use among elderly attending clinic at geriatrics and medical out-patient clinic of university college hospital, Ibadan.

4.1 Socio-demographic characteristics of the respondents

4.1.1 Age distribution

Table 4.1 showed that about 31.5% of the respondents fell within the age group 64-70, this is followed by 25.2% of respondents aged 64 and below years and the lowest proportion of 18.3% was noted among respondents aged 71-75years. The total mean age of respondents was 69 ± 8.08 years while mean age of male was 69.69 ± 8.1 years and female was 69.91 ± 8.08 years. As shown in Table 4.1, of the 400 respondents 53.7% were males and 46.3% were females. Most of the respondents were married 67.5% at the time of data collection, 10.3% were either widow or widower, 11.8% among the respondent were divorced and 5.7% reported to be single.

Of the 400 res1pondents, 44.2% had HND/Bachelor, 25.5% primary education, 18.0% secondary education, 7.0% had no formal education and 5.3% had postgraduate degree. Also from Table 4.1, 36.3% of respondents were Retirees, 29.5% were traders, 24.0% were civil servants, 9.0% were business men/women and 1.2% did not give a concise response on what they are doing. Most of the respondents are Christians 50.5%, 47.0% are Muslims while 2.5% are traditional worshippers.

The Table also shows that 71.2% are Yoruba, 15.3% are Hausa, and 12.2% are Igbo while 1.3% of the respondents belong to other ethnic groups. The Table indicated 21.2% of the respondents earned between 50,001 and 100,000 in a month, 20.7% earned between 19,501 and 28,000, 20.0% earned less than 19,500 while 18.5% earned above 100,000.

Table 4.1 Socio-demographic characteristics of the respondents (N=400)

Variable		Frequency (n)	Percent (%)
Age (years)	≤63	101	25.2
	64-70	126	31.5
	71-75	73	18.3
	76 +	100	25.0
Sex	Male	215	53.7
	Female	185	46.3
Marital Status	Married	270	67.5
	Divorced	47	11.8
	Widow/Widower	41	10.3
	single	23	5.7
	Separated	19	4.7
Educational Status	No formal education	28	7.0
	Primary education	102	25.5
	Secondary education	72	18.0
	HND/BSc	177	44.2
	Postgraduate	21	5.3
Occupation	Retiree	145	36.3
	Trader	118	29.5
	Civil Servant	96	24.0
	Businessman/woman	36	9.0
	Others	5	1.2
Religion	Christianity	202	50.5
	Islam	188	47.0
	Traditional	10	2.5
Ethnic Group	Yoruba	285	71.2
	Hausa	61	15.3
	Igbo	49	12.2
	Others	5	1.3
Monthly Earning	≤19,500	80	20.0
	19501-28,000	83	20.7
	28,001-50,000	78	19.6
	50,001-100,000	85	21.2
	100,000+	74	18.5

4.2 KNOWLEDGE OF ELDERLY ON MULTIPLE MEDICATION USE

Table 4.2 shows level of knowledge of elderly on medication use. As shown in table, the knowledge on medication use was reported as follows: More than half of the respondents (62.5%) have heard about medication use. Many of the respondents (60.7%) knew that multiple medication use is referred to use of more than four (4) medications. Over fifty percent of the respondents are of the opinion that being attended to by many health personnel can lead to multiple medication use. Less than half of the respondents (47.7%) believe that taking drugs without proper medical examination lead to multiple medication use. Less than half of the respondents (43.6%) knew about Over the Counter (OTC) drugs. More than one-fourth of the respondents (39.6%) are of the opinion that unclear instruction on drug leaflet can lead to multiple medication use. More than one-third of the respondents (36.0%) believe that multiple medication use can lead to medication repetition. More than one-quarter of the respondents (27.3%) believe that there is a relationship between multiple medication use and ineffectiveness of the medications they are taking. Using an eight (8) point knowledge scale to categorize knowledge as denoted in figure 4.1, Majority of the respondents (66.4%) had good knowledge while 33.6% had poor knowledge of multiple medication use.

Table 4.2 Knowledge of Elderly On Multiple Medication Use

Variables	Yes N(%)	No N(%)	Don't know N(%)
Have you heard of multiple medication use Before?	250 (62.5)	150 (37.5)	-
Do you know anything about Over the Counter (OTC) drugs?	174 (43.6)	226 (56.4)	-
Can taking multiple medications lead to medication repetition?	144 (36.0)	67 (16.8)	189 (47.2)
Is there any relationship between taking multiple medications and ineffectiveness of the medications you are taking?	109 (27.3)	104 (26.0)	187 (46.7)
Can being attended to by many health personnel leads to taking multiple medications?	231 (57.6)	32 (8.0)	137 (34.4)
Can unclear instruction on drug leaflet leads to taking multiple medications?	158 (39.6)	91 (22.8)	151 (37.6)
Can taking drugs without proper medical examination lead to taking multiple medications?	191 (47.7)	44 (11.0)	165 (41.3)

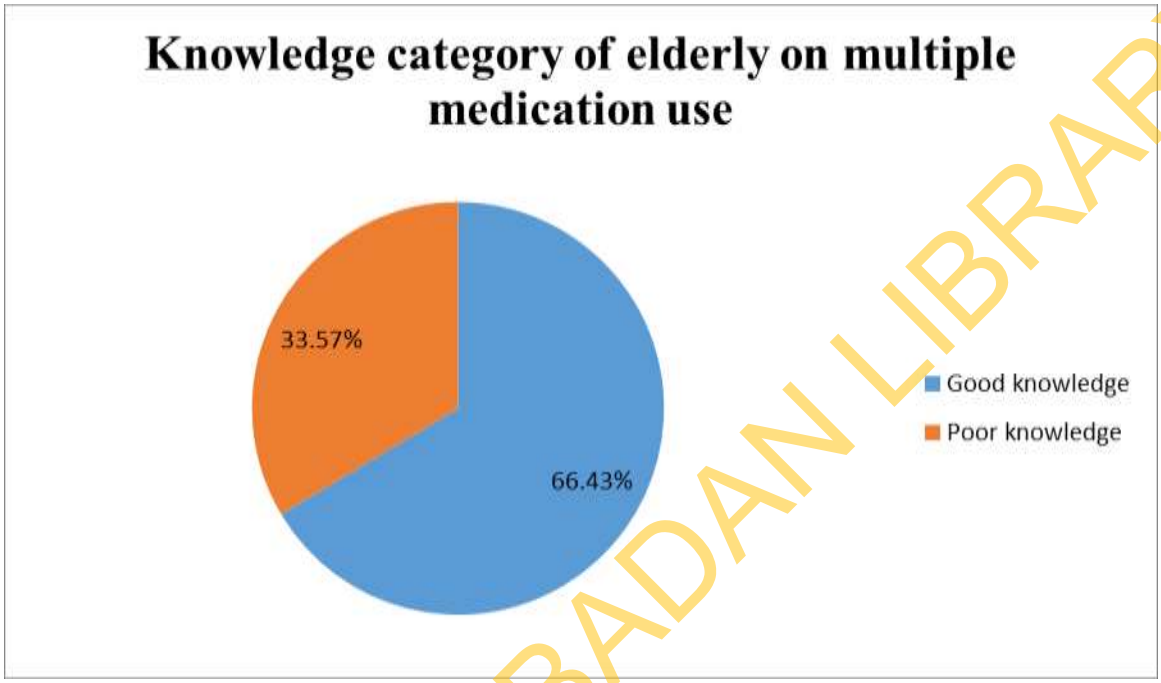


Fig 4.1: Knowledge category of elderly on multiple medication use

4.3 PERCEPTION OF ELDERLY ON MULTIPLE MEDICATION USE

As shown in Table 4.2, Perception of elderly on multiple medication use; More than half (52.1%) of the respondent disagree that use of multiple medications at the same time pose a risk for my health. Less than three-quarters of the respondents (63.3%) do not believe there is any risk associated with seeking consultation at more than one hospital. About half of the respondents (54.7%) prefer to seek information in management of their conditions from a qualified doctor. About half of the respondents (52.0%) prefer over the counter medications to the ones physician's prescribe. About one-third of the respondents (35.2%) believe that use of multiple medications places a burden on them in remembering when and how to take all prescribed drugs. Less than one-third of the respondents (31.0%) do not perceive the medications they are using to be effective. About one-quarter of the respondents (28.1%) believe that doctors are responsible for the use of multiple medications. Less than one-fifth of the respondents (18.7%) miss their medications because they are too many. About one-tenth of the respondents (10.5%) perceive taking more than four drugs to be highly risky. About one-tenth of the respondents (9.0%) believe medical check-up is not important since they already have a stable dosage.

Using a twelve (12) point scale to categorize perception of elderly, it reflects that more than half (59.3%) had poor perception of multiple medication use while 40.7% had good perception of multiple medication use.

Variables		Frequency (n)	Percent (%)
Perception of elderly on multiple medication use			
I don't believe there is any risk associated with seeking consultation at more than one hospital	Agreed	253	63.3
	Disagreed	146	36.5
	Don't know	1	0.2
I believe medical check-up is not important since I already have a stable dosage	Agreed	36	9.0
	Disagreed	320	80.0
	Don't know	44	11.0
I prefer to seek information in management of my conditions from a qualified doctor	Agreed	219	54.7
	Disagreed	169	42.3
	Don't know	12	3.0
I perceive taking more than four drugs to be highly risky	Agreed	42	10.5
	Disagreed	329	82.3
	Don't know	29	7.2
I prefer over the counter medications to the ones physician's prescribe	Agreed	208	52.0
	Disagreed	158	39.5
	Don't know	34	8.5
I do not perceive the medications am using to be effective	Agreed	124	31.0
	Disagreed	252	63.0
	Don't know	24	6.0
I often miss my medications because they are too many	Agreed	75	18.7
	Disagreed	296	74.1
	Don't know	29	7.2
I perceive the use of multiple medications to increase the risk of multiple medication use	Agreed	31	7.7
	Disagreed	349	87.3
	Don't know	20	5.0
Use of multiple medications at the same time pose a risk for my health	Agreed	185	46.2
	Disagreed	208	52.1
	Don't know	7	1.7
Use of multiple medications places a burden on me in remembering when and how to take all prescribed drugs	Agreed	141	35.2
	Disagreed	198	49.5
	Don't know	61	15.3
I feel alternative native medicines are good apart from the ones prescribed by the doctor	Agreed	45	11.2
	Disagreed	328	82.0
	Don't know	27	6.8

Table 4.3 Perception of Elderly on multiple medication use

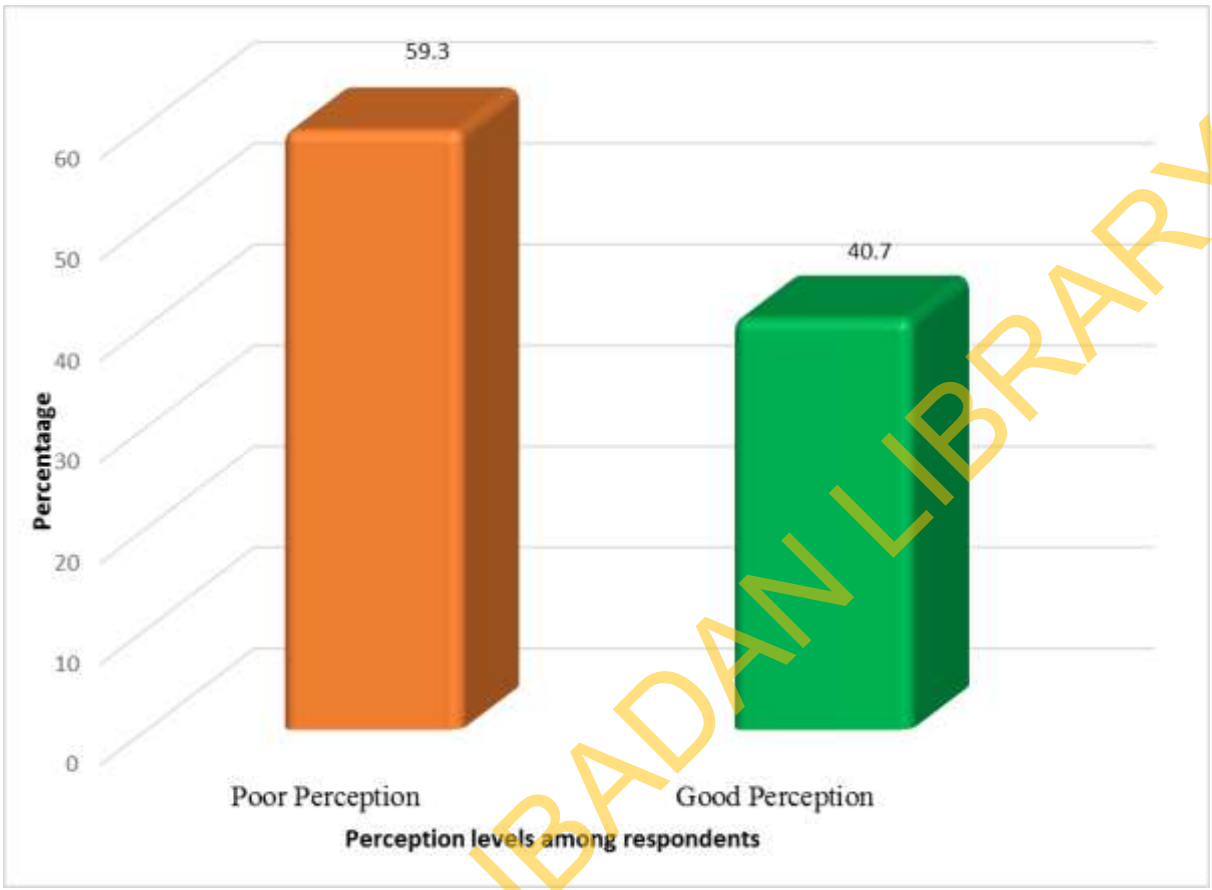


Fig 4.2 Perception category of the elderly on multiple medication use

Doctors are responsible for the use of multiple medications	Agreed	112	28.1
	Disagreed	241	60.2
	Don't know	47	11.7

4.4 Factors Influencing Multiple Medication Use

As shown in Table 4.4, Factors influencing multiple medication use; About half of the respondents (58.7%) said that long queues and waiting times in the clinic contribute to inappropriate. About half of the respondents (53.7%) opined that lack of money for purchasing of prescribed drugs push them to use multiple medications. Half of the respondents (49.7%) insisted that lack of money for transport to clinic contribute to multiple medication use too. Less than half of the respondents (43.3%) complained of the distance to the hospital from home. Less than half of the respondents (43.6%) said that forgetting to use drugs as prescribed by the doctor make them to engage in multiple medication use. Less than half (40.2%) are of the opinion that lack of availability of the prescribed drugs encourage multiple medication use. High cost of drugs 38.7%, Doctors too busy to listen to my complaints 38.1%, Stress of ingesting or injecting drugs 34.7%, Frequent change of medications 33.3%, Nature of job which prevents accessibility and use of drugs 16.2%, Difficulty in sticking only to recommended drugs 21.0%, Recommended drugs are too expensive 29.7%, Poor access to information that will promote continuous use of drugs 22.5%, Negative attitude of health staff 14.0%, About one-tenth of the respondents (12.7%) opined that side effects from recommended drugs which prompt me to do self-modification.

There was a significant relationship between the age of respondents (X^2=9.1649, df=3, p=0.02718), marital status of respondents (X^2=11.6064, df=4, p=0.02053), religion of respondents (X^2=16.9855, df=2, p=0.000205) and the factors influencing multiple medication use.

Table 4.4 Factors influencing multiple medication use

Variables			
Factors influencing multiple medication use	**Frequency (n)**		**Percent (%)**
Negative attitude of health staff	Yes	56	14.0
	No	308	77.0
	Don't know	36	7.0
Doctors too busy to listen to my complaints	Yes	152	38.1
	No	245	61.2
	Don't know	3	0.7
Lack of availability of the prescribed drugs	Yes	161	40.2
	No	227	56.8
	Don't know	12	3.0
Side effects from recommended drugs which prompt me to do self-modification	Yes	51	12.7
	No	344	86.1
	Don't know	5	1.2
Forgetting to use drugs as prescribed by the doctor	Yes	174	43.6
	No	199	49.7
	Don't know	27	6.7
Lack of money for transport to clinic	Yes	199	49.7
	No	198	49.5
	Don't know	3	0.8
Distance to the hospital from home	Yes	173	43.3
	No	207	51.7
	Don't know	20	5.0
Long queues and waiting times in the clinic	Yes	235	58.7
	No	113	28.3
	Don't know	52	13.0
Lack of money for purchasing of prescribed drugs	Yes	215	53.7
	No	113	28.2
	Don't know	72	18.1
Frequent change of medications	Yes	132	33.3
	No	242	60.5
	Don't know	25	6.2
High cost of drugs	Yes	155	38.7
	No	226	56.5
	Don't know	19	4.8
Stress of ingesting or injecting drugs	Yes	139	34.7
	No	254	63.5
	Don't know	7	1.8
Poor access to information that will promote continuous use of drugs	Yes	90	22.5
	No	305	76.2
	Don't know	4	1.0
Difficulty in sticking only to recommended drugs	Yes	84	21.0
	No	306	76.6
	Don't know	9	2.4
Recommended drugs are too expensive	Yes	119	29.7
	No	276	69.0
	Don't know	5	1.3
Nature of job which prevents accessibility and use of drugs	Yes	65	16.2
	No	331	82.8
	Don't know	4	1.0

4.5 Practice of multiple medication use

Table 4.5a, shows that 34.8% has been assessing treatment from the hospital for the past one year while 27.4% has been assessing treatment in the hospital for 3-5years, 20.0% has been assessing treatment for 2years while the remaining 17.8% has been assessing treatment from the hospital for more than 6years.The table also indicates that 57.1% are receiving treatment for one medical condition, 28.0% for two medical conditions, 12.7% for three medical conditions while 2.2% for four medical conditions.

The table also shows that 38.7% have had only one medical personnel attend to them in the past one year, 30.7% have visited two medical personnel in the past one year, 18.8% have visited more than five medical personnel, and 9.8% have visited four medical personnel while only 2.0% have visited three medical personnel. From the table, 72.7% undergo medical test often, 22.3% undergo medical test occasionally while 5.0% do that rarely.

From Table 4.5b, 68.5% said they given instruction on how to take their medications, 47.5% do read the leaflet that comes with drug before usage. More than half of those that read it understand it. About 50.5% of the respondents seek health care in faith based organizations, while 31.7% assess treatment at other hospitals apart from the one understudy, 43.2 % are forced to take medications by relations.

Table 4.5a Practice of multiple medication use relating to facility

Variable		Frequency (n)	Percent (%)
How long Treatment in the hospital(years)	1	139	34.8
	2	80	20.0
	3-5	109	27.4
	6+	71	17.8
Number of medical conditions	1	228	57.1
	2	112	28.0
	3	51	12.7
	4+	9	2.2
Number of medication	4	174	46.4
	5-6	201	53.6
Health personnel	1	155	38.7
	2	123	30.7
	3	8	2.0
	4	39	9.8
	5+	75	18.8
Degree of undergoing medical test	often	291	72.7
	Occasionally	89	22.3
	Rarely	20	5.0

Table 4.5b Practice of multiple medication use relating to medication consumed

	Yes	No
Are you assessing treatment in another hospital	127(31.75%)	273(68.25%)
Are you given instruction on how to take your medication	274(68.5%)	125(31.25%)
Do you seek health care at any faith based organization	202(50.5%)	198(49.5%)
Do you take any medication outside your doctor's prescription	21(5.25%)	379(94.75%)
Do you read the leaflet that comes with drug before usage	190(47.5%)	199(49.75%)
Do you understand the leaflet when you read them	228(57%)	169(42.25%)
Are you forced to take your medications	173(43.25%)	212(53%)

4.6 Symptoms Experienced as a result of multiple medication use

Table 4.6 shows the reported symptoms experienced by the elderly, the most common symptoms include insomnia (71.5%), tiredness (72.7%), and decrease in appetite or thirst (68.2) more as a result of multiple medication use. Other symptoms reported but not too prevalent among by the elderly as a result of multiple medication use include confusion, agitation falls, depression, walking difficulties and others as listed on the table.

Table 4.6 Symptoms Experienced as a result of multiple medication use

Symptoms experienced as a Result of multiple medication use		
Symptoms	**Yes**	**No**
Confusion	125(31.2%)	275(68.7%)
Agitation	126(31.5%)	274(68.5%)
Insomnia	286(71.5%)	114(28.5%)
Falls	123(30.7%)	277(69.2%)
Tiredness	291(72.7%)	109(27.2%)
Increase in appetite or thirst	116(29.0%)	284(71.0%)
Decrease in appetite or thirst	273(68.2%)	127(31.7%)
Depression	110(27.5%)	296(74.0%)
Walking Difficulties	102(25.5%)	298(74.5%)

4.7. Medications taken by the Elderly

Majority of the respondents (31.4%) take antihypertensive drugs. Other major medications that the respondents take include Oral hypoglycemic agents (15.2%), Non-steroidal anti-inflammatory Drugs (14.6%). Other medications taken by the elderly include antipsychotics (3.5%), insulin (8.7%), multivitamin (8.1%), sedatives (1.3%) and others.

Table 4.7 Medications taken by the elderly **N=309**

Medications	Frequency	Percent (%)
Antipsychotics	11	3.5
Antihypertensive	97	31.4
Oral hypoglycemic agents	47	15.2
Insulin	27	8.7
Multivitamin	25	8.1
Non steroidal anti-inflammatory Drugs (NSAIDS)	45	14.6
Sedatives	4	1.3
Anti tuberculosis	10	3.2
Antibiotics	16	5.2
Antiretroviral	4	1.3
Peptic ulcer drugs	10	3.2
Asthma drugs	13	4.3
Total	309	100.0

4.8 Medical Conditions of the elderly

From table 4.8, majority of the respondents almost one third (42%) are receiving treatment for Hypertension, followed by Diabetes Mellitus 18%, 15.5%, then Arthritis 7.0%. Others are Stroke 6.0%,Tuberculosis 4.0%, Parkinsons disease 3.0%, Leg ulcer 3%, Asthma 3%, Peptic Ulcer disease (PUD) 2.0%, Goitre 2.0%, Cataract 2.0%, Insomnia 2.0%, Typhoid 2.0% and the least are Hepatitis, Mental illness, Glaucoma, and HIV at 1%.

Table 4.8 Medical Conditions of the elderly

Medical Conditions	Frequency	Percent
Hypertension	168	42.0
Stroke	24	6.0
Diabetes Mellitus	72	18.0
Typhoid	8	2.0
Hepatitis	4	1.0
Arthritis	28	7.0
Insomnia	8	2.0
Goiter	8	2.0
Asthma	12	3.0
Tuberculosis	16	4.0
Parkinsons	12	3.0
Leg ulcer	12	3.0
HIV	4	1.0
PUD	8	2.0
Mental illness	4	1.0
Cataract	8	2.0
Glaucoma	4	1.0
Total	400	100.0

4.9 Test of hypotheses

4.9.1 Hypothesis 1: There is no significant difference between socio demographic characteristics of the respondents (age, sex, marital status, ethnic group, religion, occupation, level of education and monthly income) and the knowledge on medication use.

Table 4.9 Socio-demographic characteristics and Knowledge

		Knowledge					
Variable		**Good**	**Poor**	**Total**	**X^2**	**Df**	**p-value**
Monthly income	≤19,500	56	24	80	22.7976	4	0.00013
	19501-28,000	57	23	80			
	28,001-50,000	58	20	78			
	50,001-100,000	57	26	83			
	100,000+	57	22	79			
	Total	285	115	400			
Level of Education	No formal education	20	22	42	26.6569	4	0.000
	Primary education	30	50	80			
	Secondary education	22	51	73			
	HND/Bachelor degree	24	56	80			
	Postgraduate	74	51	125			
	Total	170	230	40			

There was a significant relationship between the monthly income of respondents (X^2=22.7976, df=4, p=0.00013); level of education of respondents (X^2=11.6064, df=4,p=0.000); and the knowledge on multiple medication; hence the null hypothesis for these variables are rejected. However, there was no significant relationship between sex, occupation, ethnic group, religion and age of the respondents and the

knowledge on medication use. Hence, the null hypotheses for these variables were accepted.

4.9.1 Hypothesis 2: There is no significant difference between socio demographic characteristics of the respondents (age, sex, marital status, ethnic group, religion, occupation, level of education and monthly income) and the perception on multiple medication use.

Table 4.10 Socio-demographic characteristics and Perception

		Perception					
Variable		**Good**	**Poor**	**Total**	**X^2**	**Df**	**p-value**
Level of Education	No formal education	24	20	44	27.0258	4	0.000
	Primary education	26	54	80			
	Secondary education	24	54	78			
	HND/Bachelor	24	54	78			
	Postgraduate	70	50	120			
	Total	168	232	400			

There was a significant relationship between the level of education of the respondents and perception of multiple medication use (X^2=27.0258, df=4,p=0.000); hence the null hypothesis for this variable is rejected. However, there was no significant relationship between sex, age, marital status, religion, occupation, ethnic group, and monthly income of the respondents and the perception towards multiple medication use. Hence, the null hypothesis for these variables was accepted.

Hypothesis 3: There is no association between knowledge of elderly on multiple medication use and their practices.

Table 4.11: Association between knowledge and practice of multiple medication use

The table shows that the knowledge of the respondents on multiple medication use is significantly associated with their practice (X^2 = 5.096, df = 1, p = .029). Therefore, we reject the null hypothesis which states that there is no significant association between the knowledge of the respondents and their practice of multiple medication use

		Practice						
n=400		**not practicing**	**Practicing**	**Total**	**X^2**	**df**	**P-value**	**Null Hypothesis**
Knowledge	Poor	75	176	251	5.096	1	.029	Rejected
	Good	61	88	149				
	Total	**136**	**264**	**400**				

4.9.3 Hypothesis 4: There is no association between the factors influencing multiple medication use among elderly and the practice of multiple medication use

Table 4.12 shows the association between the factors and the practice of multiple medication uses. There was a significant relationship between factors such as stress of ingesting drugs (X^2=15.463,df=1), lack of money for purchasing of prescribed drugs (X^2=18.106.df=1), frequent change of medication (X^2=20.918 df=1), forgetting to use drugs as prescribed by the doctor (X^2=14.989,df=1) and practice of elderly towards multiple medication use.

Table 4.12 Association between factors and the practice of multiple medication use

		not practising (N)	Practice practising (N)	Total	X^2	df	P-value	Null Hypothesis
n=400 **Purchasing**	No	83	102	185	18.106	1	.000	Rejected
	Yes	53	162	215				
	Total	**136**	**264**	**400**				
n=399 **Frequent**	No	70	197	267	20.918	1	.000	Rejected
	Yes	65	67	132				
	Total	**135**	**264**	**399**				
n=400 **High**	No	82	163	245	0.079	1	.778	Accepted
	Yes	54	101	155				
	Total	**136**	**264**	**400**				
n=400 **Stress**	No	71	190	261	15.463	1	.000	Rejected
	Yes	65	74	139				
	Total	**136**	**264**	**400**				
n=400 **Difficulty**	No	109	206	315	.179	1	.673	Accepted
	Yes	27	57	84				
	Total	**136**	**263**	**399**				
n=400 **Expensive**	No	86	195	281	4.852	1	.028	Rejected
	Yes	50	69	119				
	Total	**136**	**264**	**400**				
n=400 **Nature**	No	111	224	335	.688	1	.407	Accepted
	Yes	25	40	65				
	Total	**136**	**264**	**400**				
n=399 **Poor**	No	100	209	309	1.326	1	.249	Accepted
	Yes	35	55	90				
	Total	**135**	**264**	**399**				
n=395 **Negative**	No	122	217	339	3.486	1	.062	Accepted
	Yes	13	43	56				
	Total	**135**	**260**	**395**				
n=400	No	79	169	248	1.338	1	.247	Accepted

Complains	Yes	57	95	152				
	Total	**136**	**264**	**400**				
n=400 **Prescribed**	No	72	167	239	3.972	1	.046	Rejected
	Yes	64	97	161				
	Total	**136**	**264**	**400**				
n=400 **Side Effects**	No	123	225	348	1.923	1	.166	Accepted
	Yes	13	38	51				
	Total	**136**	**263**	**399**				
n=400 **Forgetting**	No	67	159	226	4.389	1	.036	Rejected
	Yes	69	105	174				
	Total	**136**	**264**	**400**				
n=400 **Lack**	No	50	151	201	14.989	1	.000	Rejected
	Yes	86	113	199				
	Total	**136**	**264**	**400**				
n=400 **Distance**	No	70	157	227	2.340	1	.126	Accepted
	Yes	66	107	173				
	Total	**136**	**264**	**400**				
n=400 **Long queues**	No	59	106	165	.387	1	.534	Accepted
	Yes	77	158	235				
	Total	**136**	**264**	**400**				

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Discussion

This section is discussed under the following headings:

1. Demographic characteristics of respondents
2. Respondents' knowledge of multiple medication use
3. Respondents' perception of multiple medication use
4. Practice of multiple medication use
5. Factors that influence of multiple medication use.

5.1.1 Socio-demographic characteristics of respondents

Findings from this study showed that most of the respondents were between the ages of 64 and 70years of age. This shows that most of the respondents were in their late adulthood and early elderly which is similar with previous studies (Kathleen, 2010). This age range might be because the study focuses on multiple medication use which is more prevalent among the elderly.

Most of the respondents were males which might be due to the fact that they are the breadwinners of the family and as such they are always exposed to the hazards of the environment. This can lead them to multiple health issues. Also majority of respondents were married which is due to all of the respondents being adults or elderly. In addition, more than half of the respondents were traders and retirees which are consistent with most of the respondents being males who are majorly traders in the study location. Most of the respondents are Yoruba which is a result of the study location. In addition, most of the respondents are HND/Bachelor degree holders. This might be as a result of the fact that the foremost university in the country is situated near the study location and so the respondents must have decided to identify with the school.

5.1.2 Respondents' knowledge of multiple medication use

Most of the respondents attested to the fact that they have a good knowledge of multiple medications. This might be due to the fact that most of them are HND/ Bachelor degree holders and as such must have heard about it. Some of the important knowledge of multiple medications that they have includes meaning, forms, causes and its consequence. They also showed to have an idea of Over the Counter drugs (OTC).

There was an association between the monthly income of the elderly and their knowledge on multiple. Those that earned between (28001 – 50000) affirmed the most while those that earned 19500 or less affirmed the least.

From the study, there was a significant relationship between the monthly income of respondents, level of education of respondents and the knowledge of multiple medication use. This must be due to the fact that they must have been exposed to lectures and seminars on health related issues in the civil service. This is one of the methods the government uses to improve the welfare of their workers occasionally. The artisans have poor knowledge. This is true as most of them have little or no education or exposure due to the nature of their work.

5.1.3 Respondents' perception on multiple medication use

Knowing the perception of multiple medication use among the elderly is a good way to assess factors influencing multiple medication use. Among the perceptions that are of particular importance are knowledge of the risk of using multiple medications, knowledge of the risk of consulting more than one hospital, preference of seeking information from a qualified doctor, preference of over the counter drugs to physicians' prescription, blaming doctors for multiple medications.

Most of the respondents agreed that there's no risk associated with seeking consultation at more than one hospital and also prefer Over The Counter drugs to the ones prescribed by the physician. These forms part of the forms of multiple medication use seen by the elderly.

Most of the respondents disagreed that the use of multiple medications at the same time poses a risk to their health. This might be explained by considering the educational status and the occupation of the respondents. About one quarter of the

respondents had only primary education and more than one quarter are traders. With these factors, it can be concluded that their education background and their busy nature due to their occupation will hinder them from getting informed.

There is an association between the level of education and the perception. Those that had postgraduate degrees affirmed the most due to their level of exposure while those that had no primary education responded the least.

5.1.4 Practice of multiple medication use

In this study, most of the respondents assessed have been accessing medical treatment at University College Hospital for the past 3-5 years. This is as a result of most of them being indigenes of Oyo State and also from the fact that the hospital is the premier teaching hospital and one of the best in the country with distinguished medical practitioners.

A large number of the respondents are receiving between two to four treatments in the hospital and most of them are diagnosed of Tuberculosis, Diabetes Mellitus, Hypertension, ulcer among others. This is similar to the disease conditions associated with the elderly (Federal Interagency Forum on Aging 2006; Gurwitz 2004).

A survey of the practice of multiple medication use among the respondents in the hospital showed that virtually all of them are taking more than one medication. Almost half of the respondents are on five or six medication. This is consistent with a large study in Europe (N=2707, mean age = 82.2years), which found out that 51% of patients took ≥6 medications per day (Fialova *et al*,2005). This explains the finding that multiple medication use is practiced most among the elderly. The number of medications taken by the respondents is evident due to the number of medical treatments they are receiving both from the hospital and from other medical personnel outside the hospital. This is similar to the findings of Gurwitz J.H, Field T.S (2003) on the medications often used by the elderly.

Most of the respondents take antihypertensive drugs. This is so as all the respondents are aged and hypertension happen to be one of the major disease of old people. Other medications used frequently by the respondents are oral hypoglycaemic agents, NSAIDS, multivitamins, and insulin. Others include antipsychotics, sedatives, antituberculosis, antibiotics, antiretroviral, antiulcer and antiasthma.

The respondents are prone to undergoing medical test. More than half of the respondents agreed that they undergo medical test always. This explains the reason behind the number of medication they are taking and the number of medical treatment receiving. The fact that they are aged is also a contributing factor to their persistent medical checkup.

A good number of them agreed that they are given instructions on how to take their medications. This may be due to the fact that they are in one of the best teaching hospital in the country made up of seasoned medical personnel in different fields. This also can be explained by the fact that majority of them are literates and so they know the importance of question and answer when receiving medications.

Having a knowledge of the drug aside the ones the medical personnel gives goes a long way to reducing the risk of multiple medication use. This knowledge can be gotten by reading the leaflets that accompany drugs. Unfortunately, most of the respondents do not read drug leaflets. This may be due to their old age as they are mostly unable to see, read and comprehend what they are reading. Also, a good number of them are traders and only managed to finish primary school leading to their inability to read and comprehend drug leaflets.

Most of them take medications outside the doctor's prescription. More than one-third of them have a good knowledge of Over the Counter drugs. This is consistent with the study conducted by (Stoehr G.P, Gangul M *et al* 1997)) in which 1050 elderly patients were investigated and it was discovered that 90% took >1 and 50% of them took 2 to 4 over the counter. The long queues at the clinics are also not helping matters. Instead of staying for hours at the queue waiting to get prescription from the doctor, they resort to help themselves by buying over the counter without prescription from seasoned personnel.

5.1.5 Factors influencing multiple medication use

The factors influencing multiple medication use are the issues that prompt people to engage in the practice. The factors that the respondents identified strongly with include lack of money both for transport and for the purchase of drugs, long queues and waiting times in the clinic. The long queues in the clinic are a very good factor due to the fact that elderly men cannot stand the long queues for hours. This will

eventually lead them to practice multiple medications to save their energy. The lack of money for the purchase of prescribed drugs is likely to prompt them to practice multiple medication use. This is true as they also agreed that the prescribed drugs are always expensive. As they are mostly retirees, they will find it hard to get money because they are not strong enough to work and their pensions may not always be available. This can be related to a study conducted in Latin America (Wirtz, Dreser et al. 2010) found that, Venezuela has the highest antibiotics utilization rate in Latin America, followed by Argentina and Chile, while Brazil, Uruguay and Colombia have the lowest utilization rates. Age of the respondents played a role in determining the factors influencing multiple medication use. There was an association between the various age groups and the factors influencing multiple medication use. This is similar to the findings of Linjakumpu (2002), Chrischikus *et al* (1992) and Fillenbaun *et al* (1996) that age is associated with multiple medications use.

The marital status of the respondents also played a role in determining the factors that influence multiple medications use. There was an association between multiple medication use and the marital status of the respondents. Among the elderly, those that are single affirmed the most to the perceived factors. Among the factors that they gave positive response to include long queues, cost of prescribed drugs. Those that are married affirmed the least to the factors that lead to multiple medication use. The factors that they did not consider likely to cause multiple medication use include forgetting to use drugs as prescribed by the doctor and difficulty in sticking only to recommended drugs. The reason for this might be because they have partners. For as long as they are still partners even at old age, they will always take care of each other even as it concerns their drug administration and control.

Findings from this study shows that there was a significant relationship between factors such as stress of ingesting drugs, lack of money for purchasing of prescribed drugs, frequent change of medication, forgetting to use drugs as prescribed by the doctor and practice of elderly towards multiple medication use. This is similar to the findings from the Survey of the Health of Wisconsin (SHOW) by Jianhong Che et al (2014) which indicates that people without health insurance, prescription drug coverage, and a regular source of care were less likely to use prescribed medications.

Consequently, lack of access to health care may lead to suboptimal treatment of diseases among these adults.

5.2 Implications of findings on health promotion and education

The findings of this study have implications for health promotion and education. Over the years, health promotion strategies have been used to ameliorate health problems. These strategies help in preventing or mitigating health related problems and could also be important in this case. Some of the identified gaps from this study include inadequate information concerning dosage of drugs given to the patients by the health worker, poor knowledge of elderly on multiple medication, increase in the rate of practice of the aforementioned gaps could be corrected with strategies such as training, effective communication and advocacy.

Training could be used to help reorientate health workers on the dangers of inappropriate prescription of drugs to patients. This could be initiated through health organizations such as the Nigerian Medical Association or an expert from the ministry of health could serve as a resource person. The training could be in form of continuing education, conference, seminar or workshop for the health workers. A curriculum centered on appropriate prescription could be designed for the sake of the training. Training contents could include; the methods of appropriate prescription, the dangers of multiple medication use and drug-drug interactions. The materials to be used are training brochures, audiovisuals, pictorials, charts etc. Lecture and discussions could be methods that will facilitate the training. A pre and post examination is an evaluation method that could be employed to ascertain the impact of the training. This will go a long way in mitigating the dangers associated with inappropriate prescription of which a major one.

Effective communication is another health promotion strategy that could be used to lessen the burden of multiple medication use. Effective communication could be used during the health talk delivered at health clinic while patients are waiting to see the doctor. Effective communication involves enlightening individuals on the appropriate use of drugs and the negative effect of multiple medication use and self-prescription. The health talk could be delivered by a health worker with adequate knowledge of

health promotion and education. This individual could in turn use Behavioral Change Communication (BCC) materials such as posters and flyers which will in turn help to emphasize the message to the patients. The BCC materials will contain messages which have been well designed by a BCC expert. Example of these messages could be; “ensure that you do not take drugs indiscriminately”, “Shy away from the use of n too many drugs”. Effective communication could also be used in other settings apart from the hospital. BCC materials could be place in strategic area. BCC-themed messages could also be disseminated through media outlets such as radio and television for effectiveness. This will go a long way in correcting misconceptions about the use of drugs and make individuals conscious of the underlying dangers of multiple medication use.

Advocacy is another strategy that could be used in order to control the prevalence of self-medication which is one of the factors that lead to multiple medication use. Non-governmental organizations, patients associations and medical associations could advocate for policies that will help in limiting self-medication. An advocacy meeting could be held with policy influencers/makers such as top stakeholders within the ministry of health at both federal and state level. During this meeting, the burden and dangers associated with multiple medication use and its risk factors could be explained and provision of a better policy to help mitigate it could be demanded. Existing laws could also be improved upon. For example, the law either improved or newly created could help in limiting the access of individuals to drug without authentic prescription. Media advocacy which involves the use of media outlets such as the internet, television and radio could also be vital in putting pressure on policy makers to help do something about the problem. This could be trough advertisements, health shows or programmes.

5.3 Conclusion

This study has shown the pattern, practice and factors influencing multiple medication use among the elderly in geriatric and medical out-patient clinics at University College Hospital Ibadan. The study also assessed their knowledge, perception and attitude towards multiple medication use.

The study revealed that some of them practice multiple medication use. It reveals that some do it unknowingly due to ignorance, level of exposure, high cost of medications and inability to read drug leaflets.

The study also reveals that most of them are aware of multiple medication use but they are not aware of its health implications.

In the light of these findings, recommendations were suggested which could be adopted and utilized by the appropriate agencies. It is hoped that if these recommendations are implemented there will be reduced early death among the elderly.

5.4 Recommendations

In the light of the findings of this study, the following recommendations are suggested:

1 Communication is the key. Awareness on multiple medication use and the associated risk should be taken very serious. The information should be communicated to everyone not just the elderly ones. Adequate arrangements should be put in place to extend the information to traders at the markets, business men and women including those in the rural settlements. Public health personnel and the relevant agencies have a big role to play in this part.

2 Self-medication should be highly criticized. It includes adjusting doses without informing the doctor, using an old discontinued medication for a flare up of a condition or trying out something that worked for a friend. The dangers of all this should be publicized.

3 Health personnel should endeavour to inform their patients to maintain accurate medication and medical history. Having a complete list of medication can deter a provider from adding on an additional therapy. Identifying the patient medical history allows the pharmacist to identify an inappropriately prescribed medication.

4 Health personnel should always inform their patients on the perceived side effects of a particular drug prescription. This will prepare their minds for it and prevent them from seeking additional drugs to stop the effects. Or when necessary, the adequate medication for side effects should be prescribed to them.

5 There's every need for the patients especially the elderly to have only one medical personnel for consultations. If there's any need for referral or change, it must be the medical personnel that have been attending to the patient that will recommend the referral.

6 The government should on their part ensure timely release of pensions and gratuities to the retirees to enable them take care of themselves. When this is done the risk of patronizing roadside chemist for cheaper drugs and random mixing of drugs will reduce thereby decreasing multiple medication use.

7 Prescription for the elderly should be done only when there is good evidence of likely efficacy as well as a strong need for the medication. Prescription for minor, non-specific or self-limiting complaints should stop.

8 Future research in this field should be done using a case series study by obtaining secondary data from patient's case note so as to minimize recall bias. This is due to the fact that most of the patients are elderly and having problem stating the drugs they are based on.

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APPENDIX ONE

QUESTIONNAIRE

DEPARTMENT OF HEALTH PROMOTION AND EDUCATION
FACULTY OF PUBLIC HEALTH
COLLEGE OF MEDICINE
UNIVERSITY OF IBADAN, IBADAN

QUESTIONNAIRE ON PATTERN, PRACTICE AND FACTORS INFLUENCING MULTIPLE MEDICATION USE AMONG ELDERLY ATTENDING GERIATRIC AND MEDICAL OUT-PATIENT CLINICS AT UNIVERSITY COLLEGE HOSPITAL, IBADAN.

Dear Sir/Ma,

I am a postgraduate student of the department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan. The purpose of this study is to assess the pattern, practice and factors influencing multiple medication use among elderly attending geriatric and medical out-patient clinics at University College Hospital Ibadan. The findings from this study will help in the design of an intervention program towards increasing awareness on the possible consequences of multiple medication use and prevent them among the patients.

Your identity, responses and opinion will be kept strictly confidential and will be used for the purpose of this research only. Your maximum cooperation will assist in making this research a success.

Would you want to participate in this study Yes ( ) No ( )

Note: Please tick (√) boxes where applicable and write information where necessary.

Thank you

SECTION A: SOCIO-DEMOGRAPHIC INFORMATION

Instruction: For most of the questions in this section, please tick (√) the appropriate alternative response(s). In some cases, however simply supply the needed information in the blank spaces provided.

1. Age in years as at last birthday ( )
2. Sex: A. Male ( ) B. Female ( )
3. Religion A. Christianity ( ) B Islam ( ) C. Traditional ( )
   D. Others ( ) Please specify.....
4. Marital Status (a). Single ( ) (b). Married ( ) (c). Divorced ( ) (d). Widow ( )
   (e). Separated ( ) (f). Cohabiting ( )

5. Educational status: a. No formal Education ( ) b. Primary Education ( )
   c. Secondary Education ( ) d. HND/Bachelor ( ) e. Postgraduate ( )
6 Occupation a) Trader ( ) (b).Civil servant ( ) (c). Businessman/woman ( )
   (d).Retiree. ( ) (e) Others (specify).....
7. Ethnic Group: A. Yoruba ( ) B. Hausa ( ) C. Igbo ( ) D. Others Please Specify……
8. In a month, what is your total monthly income from all sources ……

SECTION B: KNOWLEDGE OF ELDERLY ON MULTIPLE MEDICATION USE

Instruction: Please for each of the questions below tick (√) the appropriate answers in the spaces provided.

9. Have you heard of multiple medication use before? a. Yes ( ) b. No

10. Do you know the use of four or more medications is referred to as multiple medication use?
    a. Yes ( ) b. No ( ) c. I don't know ( )
11. Do you know anything about Over the Counter (OTC) drugs?
    a. Yes ( ) b. No ( )
    If yes what do you know about OTC?
    ……
12. Can multiple medications use lead to medication repetition?
    a. Yes ( ) b. No ( ) c. I don't know ( )
13. Is there any relationship between multiple medication use and ineffectiveness of the medications you are taking?
    a. Yes ( ) b. No ( ) c. I don't know ( )
14. Can being attended to by many health personnel lead to multiple medication use??
    a. Yes ( ) b. No ( ) c. I don't know ( )
    If yes how can it lead to multiple medication use ……
15. Can unclear instruction on drug leaflet lead to multiple medication use?
    a. Yes ( ) b. No ( ) c. I don't know ( )
    If yes how can unclear instruction lead to multiple medication use……
16. Can Taking drugs without proper medical examination lead to multiple medication use?
    a. Yes ( ) b. No ( ) c. I don't know ( )
    If yes, can you explain ……..

SECTION C: PRACTICE OF MULTIPLE MEDICATION USE AMONG ELDERLY

17. How long have you been accessing medical services for the treatment in this Hospital? _____
18. How many medical conditions are you receiving treatment for in this hospital? _____
    a. Can you name them …….
19. a. How many medications are you taking? _____
    b. What medications are you taking (Can you Name them)……
20. Are you assessing treatment in other hospital? a. Yes ( ) b. No ( )

21. (a) How many health personnel's have attended to you in the past one year apart from your doctor? ……..
    (b) Can you please mention them(i)…… (ii) ……
    (iii)…….. (iv)……

(c) Did any of them add to your routine medications? a. Yes ( ) b. No ( )
If yes how many? ……..

22. Have you ever experienced any of these symptoms as a result of multiple medication use? (**You can tick more than one**)
(a) Confusion
(b) Agitation
(c) Insomnia
(d) Falls
(e) Tiredness
(f) Increase in appetite or thirst
(g) Decrease in appetite or thirst
(h) Depression
(i) Walking Difficulties
(j) Others

23. Are you given any instruction on how to take your medications
a. Yes ( ) b.No ( )
If yes; is the instruction
a. Clear
b. Unclear
c. Complex
d. Incomplete

24. How often do you undergo medical test? ……..

25. Which of the following test have you carried out in the past 3 months?'
a. blood pressure
b. Urine test
c. Lipid profile
d. Blood sugar
e. X-ray
f. Others (State)

26. Has your physician modified you medication based on any of the following lifestyle? **(You can tick more than one)**
a. Smoking
b. Food and fluid intake
c. Nature of occupation
d. Changes in daily habit
e. Exercise
f. Others (mention) ……..

27. Do you seek health care at any faith based organization? a. Yes ( ) b. No ( )
If yes why……

28. Do you take any medication outside your Doctor's prescription?
a. Yes ( ) b. No ( )
If yes why……

29. Do you read the leaflet that comes with drug before usage? a. Yes ( ) b. No ( )
If yes do you understand what you read? a. Yes ( ) b. No ( )
If no why ……

30. Are you forced to take your medications by relations? a. Yes ( ) b. No ( )
If yes why ……..

SECTION D: PERCEPTION OF ELDERLY TOWARDS MULTIPLE MEDICATION USE

Instruction: For each of the questions below to capture health seeking behaviour; tick (√) the appropriate answers in the blank spaces provided.

Measurement of perception of elderly towards multiple medication use

	Perception of elderly towards multiple medication use	**Agree**	**Disagree**	**I don't know**
31	I don't believe there is any risk associated with seeking consultation at more than one hospital			
32	I believe medical check-up is not important since I already have a stable dosage			
33	I prefer to seek information in management of my conditions from a qualified doctor			
34	I perceive taking more than four drugs to be highly risky			
35	I prefer over the counter medications to the ones physician's prescribe			
36	I do not perceive the medications am using to be effective			
37	I often miss my medications because they are too many			
38	I perceive the use of multiple medications to increase the risk of multiple medication use			
39	Use of multiple medications at the same time pose a risk for my health			
40	Use of multiple medications places a burden on me in remembering when and how to take all prescribed drugs			
41	Doctors are responsible for the use of multiple medications			
42	I feel alternative native medicines are good apart from the ones prescribed by the doctor			

SECTION E: FACTORS INFLUENCING USE OF MULTIPLE MEDICATIONS

Instruction: The table below contains a list of factors that influences your medication and adherence behaviour Tick **(√) yes if it has affected you and No if it has not affected you.**

Factors influencing use of multiple medications

	Factors influencing use of multiple medications	**Tick (√)**		
		Yes	**No**	**I don't know**
43	Negative attitude of health staff			
44	Doctors too busy to listen to my complaints			
45	Lack of availability of the prescribed drugs			
46	Side effects from recommended drugs which prompt me to do self-modification			
47	Forgetting to use drugs as prescribed by the doctor			
48	Lack of money for transport to clinic			
49	Distance to the hospital from home			
50	Long queues and waiting times in the clinic			
51	Lack of money for purchasing of prescribed drugs			
52	Frequent change of medications			
53	High cost of drugs			
54	Stress of ingesting or injecting drugs			
55	Difficulty in sticking only to recommended drugs			
56	The drugs recommended by doctors are too expensive			
57	Nature of job, which prevents accessibility and use of drugs			
58	Poor access to information that will enhance correct use of drugs			

Thank you for your cooperation.

AKORI IWADI: YIYANANA AWON NKAN TOLE SOKUNFA OOGUN PUPO LILO

LAARIN AWON AGBALAGBA TO LOFUN AYEWO NI ILE IWOSAN TI EKO - +IMO IWOSAN TI ILE IWE EKO GIGA TI ILU IBADAN

Eyin eludahun wa nitooto,

Oruko temi ni Saheed Adebayo, Akeko ile iwe giga ti unifasiti ti ilu ibadan Eka ti Igbelruge ati eko eto ilera, ile iwe imo iwosan, ti ilu Ibadan. Mo je ikan lara awọn egbe ti ohun gbe igbese lati se iwaadi kan ti akole re je. Iwadi ewu to wa ninu lilo ogun akape laarin awon agbalagba ti won gba itoju ninu ile- iwosan ti eko giga ti imo iwosan ti unifasity ilu Ibadan. Esi iwadi yi

Esi iwadi yi yio ni yio se ifilele ati itọkasi pelu ojuami ni ṣiṣẹda awọn ohun elo fun ijoba ati ile ise tikiise ti ijiba (NGOs) lati gbero ati sise ifilole anan ati iseto fun ona lati se ipolongo lori ona lati gbogun ti oogun akapo lilo laarin awon agbalagba.

Gbogbo esi yin ti yio jeyo ninu iwadi yi ni yio wa ni pipamo laarin wa .Inu wa yio dun pupo ti ebale dara po mowa ninu iwadi yi nitoriwipe aseyori iwadi yi duro lori idahun yin tokan tokan.

Ese pupo.

Nje efe darapo mowa ninu iwadiyi Beeni ( ) Beeko ( )

Atoka: Ejowo esami (√) ***yi idahun ti oba bojumu julo si yin ninu ibeere ikookan***

IPIN A: Awon nkan idanimon nipa yi (**SOCIO-DEMOGRAPHIC INFORMATION)**

ATOKA: Fun pupo ninu awon ibeere wonyi, ejowo esami (√) yi idahun ti oba bojumu julo si yin ninu ibeere ikookan. Sugbon, lari awon ibeere miran, ekan mu ninu awon idahun si awon ibeere ninu awon alafo ti afi lele.

1. Ejowo omo odun melo ni ese ni ojo ibi ti ese kehin.....(Odun)

2. A. Okunrin( ) B. Obirin ( )

3. Elesin woni yin a.Kristiani **[ ]** b. Musulumi [**]** c. Elesin Abalaye **[ ]** d. Imiran eso pato **(**edaruko**)**……

4. Ipo wo ni ewa nipa igbeyawo (a). Nko gbeywo ri ( ) (b). Moti gbeyawo ri ( ) (c). Ofintitu igbeyawo waka ( ) (d). Opo ( ) (e). Ati pinya ( ) (f). Akan jongbe ( )

5. Iwe melo ni eka: a. Nko kawe rara ( ) b. Ile-Iwe alako bere ( )C. Iwe mewa ( ) d. Ile iwe giga( ) e. Ile iwe eko giga julo ( )

6.Iru Isewo len se a) Olokowo (b).Osise ijoba (c). Onisowo (d).Osise fehinti. (e) Imiran (Eso pato).....?

7.Omo eya wo ni yin**?**: 1. Yoruba ( ) 2. Hausa ( ) 3. Igbo ( ) 4. Eya Imiran (eso pato) _____

8. Bi elo ni eman pa ni owo ninu osu ati eyi ti awon eyan fun yin ……

IPIN B: IMO AWON AGBALAGBA NIPA OOGUN PUPO LILO

Atoka: Ejowo fun ikokan ninu awon ibeere towa ni isale na, ejowo esami (√) si idahun ti oba bojumu julo.

9. Nje eti gbo nipa oogun pupo lilo ri? a. Beeni ( ) b. Beeko

10. Nje emo wipe oogun pupo lilo tunmo si lilo oogun orisi merin tabi ju beelo
a. Beeni ( ) b. Beeko ( ) c. Nko mo ( )
11. Nje emon nipa oogun rira Laimun iwe ase dokita dani?
a. Beemi ( ) b. Beeko ( )
Ti obaje beeni, ki le mo? …….
12. Nje ki ama lo oogun pupo, le sokun fa ki eniyan maalo oogun kan naa ni emeji?
a. Beeni ( ) b. Beeko ( ) c. Nko mo( )
13. Nje ibasepo wa laarin oogun pupo lilo ati ki oogun miran koma sise lona to ye?
a. Beeni ( ) b. Beeko ( ) c. Nko mo ( )
14. Nje gbigba itoju lati odo awon osise to po ni ile iwosan le sokunfa oogun pupo lilo?
a. Beeni ( ) b. Beeko ( ) c. Nko mo ( )
15. Nje atoka ti ko ye yin to le sokun fa oogun pupo lilo ?
a. Beeni ( ) b. Beeko ( ) c. Nko mo ( )
16. Nje lilo oogun laise ayewo rara le sokunfa oogun pupo lilo?
a. Beeni( ) b. Beeko ( ) c. Nko mo ( )

IPIN C: ISE AWON AGBALAGBA NIPA LO OGUN PUPO LILO

17. Igbawo ni ebere sini wa fun itoju ninu ile iwosan yi? _____
18. Aisan ara melo ni en gba itoju fun nibi yi? _____
(a) nje ele daruko won……
19. Oogun orisi melo ni ehun lo lowolowo bayi ? _____
(a) Awon ogun wo ni enlo bayi (nje ele daruko won) _____
20. Nje eyin ngba iwosan ni ile iwosan miran? a. Beeni( ) b. Beeko ( )
21. (a) Osise eleto ilera melo ni oti se itoju fun yin ni nu odun kan seyin yato si awon dokita ……
(b)Nje ele daruko won bi? (i)…… (ii) ……
(iii)…….. (iv)……
(c) Se ikakan ninu won fi kun awon ogun ti en lo? a. Beeni( ) b. Beeko ( )
To ba je beeni melo? ……
22. Nje eti ri ikan ninu awon apeere ti owa ni isale yi ri? (**Ele mun ju eyokan lo**)
(a) Iruju
(b) Aini ifokan bale
(c) Airorun sun
(d) Isubu loore koore
(e) Rire are
(f) Ofun gbigbe tabi ebi pipa
(g) Aile jeun tabi aile mi omi
(h) Ibanu je okan
(i) Ailerin daadaa?
(j) awon iyoku
23. Nje won fun yin ni atoka oogun lilo a. Beeni ( ) b. Beeko ( )
Ti oba je beeni, nje atoka na:
(a) Oye mi
(b)Ko yemi rara
(c)Oru mi loju
(d)Atoka naa, ko kun oju osunwon to
24. Emelo ni ema lo fun ayewo ni ile iwosan? ……..

25. Ewo ninu awo ayewo yi ni eti lofun ninu osu mejila seyin?'

g. Ifunpa
h. Ayewo ito
i. Ayewo Ora ninu ara (Lipid profile)
j. Ayewo suga ninu eje
k. Ayewo foto egungun (x-ray)
l. Imiran (Esopato)

26. Nje dokita yin ti yi oogun yin pada nitori igbe aye yin bi? **(Ele mun ju eyokan lo**)

a. Siga mumu
b. Ouje ati Oun mimu
c. Iru ise ti ehun se
d. Ayi pada ninu ise oojo yin
e. Ere idaraya sise

27. Nje eman gba iwosan ni ile aladura bi? a. Beeni ( ) b. Beeko ( )
Ti oba jewipe Beeni, kini idi……

28. Nje eman lo oogun ti oyato si eyi ti dokita yin ko fun yin? a. Beeni ( ) b. Beeko ( )
Ti oba jewipe Beeni, kini idi ……

29. Nje eman ka atoka ti oba gbogbo oogun wa ki eto lowan? a. Beeni ( ) b. Beeko ( )
Ti oba jewipe Beeni ,nje nkan ti eka ye yin bi? a. Beeni ( ) b. Beeko ( )
Ti oba je beeko, kini idi……

30. Nje awon ebi yin ma kan nipa fun yin lati loogun? a. Beeni ( ) b. Beeko ( )
Ti oba je beeni, kini idi……

IPIN C: ERONGBA AWON AGBALAGBA NI PA OOGUN PUPO LILO

Atoka: Fun ikokan ninu awon ibeere ti owa ni isale wonyi, lori iwadi nipa iwa wiwa ilera fun ara eni;ejowo esami si (√) idahun tioba bojumu julo.

IBEERE LORI ERONGBA AWON AGBALAGBA NI PA OOGUN PUPO LILO

	Erongba Awon Agbalagba Nipa oogun pupo lilo	**Mofaramo**	**Nko faramo**	**Nko mo**
31	I Nko lero wipe ewu kankan wa ninu gbigba itoju ni ile iwosan ti oju eyokan lo			
32	Monigbagbo wipe ayewo ni ile iwosan ko se pataki nitori wipe moni oogun ti ope oju osuwon			
33	Ote milorun lati gba iwosan lati odo dokita ti omon nipa ailera mi ju kin gba ni ibo miran lo			
34	Nititemi, mori lilo oogun bi merin ati jubeelo lekan gegebi nkan ti o lewu			
35	Nititemi, mo nifesi oogun akape ju oogun ti awon dokita bako lo			
36	Nko ri oogun ti monlo gege bi oogun ti on sise daadaa			
37	Moman saba gbagbe lati loogun mi nitori wipe oti poju			
38	Emi ri oogun pupo lilo gege bii nkan ti ole se okunfaa ki ama lo oogun daadaa			
39	Oogun pupo lilo leekan naa lewu pupo fun ilera mi			

40	Oogun pupo lilo je oun inira fun lati ranti asiko ati igba ti maa lo gbogbo awon oogun na			
41	Awon dokita lon se okunfaa oogun pupo lilo			
42	Mo gbati oogun ibile abalaye ju ti oogun oyinbo lo			

IPIN D: OHUN TI OLE SE OKUNFA OOGUN PUPO LILO

Ifilo: Nini awon ibeere ti owa ninu tabili ni isale wonyi, lori iwadi nipa Awon nkan ti ohun sokunfa oogun akopo lilo;ejowo esami si (√) idahun tioba bojumu julo si ona oogun akapo lilo ti yin **Awon nkan ti ohun sokunfa oogun pupo lilo**

Awon nkan ti ohun sokunfa oogun pupo lilo		**Emu eyokan (√)**		
		Beeni	**Beeko**	**Nko mo**
43	Iwa buburu ti awo osise eleto ise iwosan			
44	Awon dokita ti poju kii je ki won teti si awon nkan ti ohun se mi			
45	Aisi oogun ti won dokita ko funmi nile			
46	Ailera ti ountele awon oogun ti dokita bako funmi lomu kin maalo awon oogun funraaa mi			
47	Moun gbagbe lati lo oogun ti dokita bako fun mi			
48	Ailowo lati san owo oko lo si ile iwosan			
49	Ona jijin ile iwosan si ile ti mon gbe			
50	Diduro fun igba pipe lori ila.ni ile iwosan			
51	Aisi owo lati ra awon oogun ti dokita bako			
52	Pi paaro oogun lilo pada loore koore			
53	Oogun wiwon			
54	Inira towa lara oogun lilo tabi abere gbigba			
55	Inira towa lara lilo oogun ti won bako funmi nikan			
56	Oogun ti awon dokita ko ti wonju			
57	Iru ise timon se lo se idana fun oogun lilo ati rira			
58	Aini imoran to lori ona lati loogun ni ona ti oto			

Ese pupo fun ifowo sowo po yin